

Mobility Working Group: Session 1

May 1, 2017



ENVISION CAMBRIDGE

Agenda

Process Overview

Existing Conditions

Issues and Opportunities

Existing City Priorities

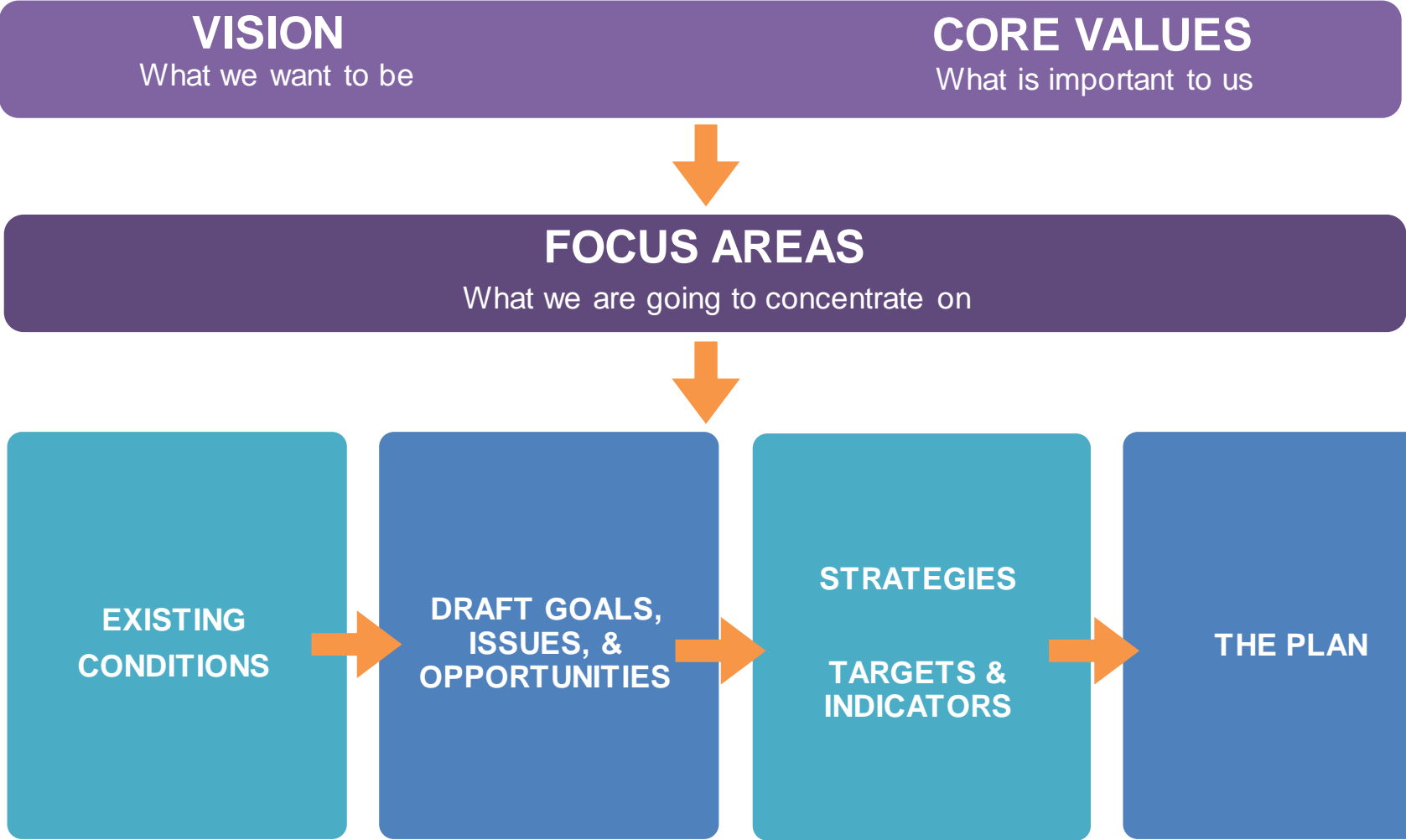
Goal Development

Process Overview



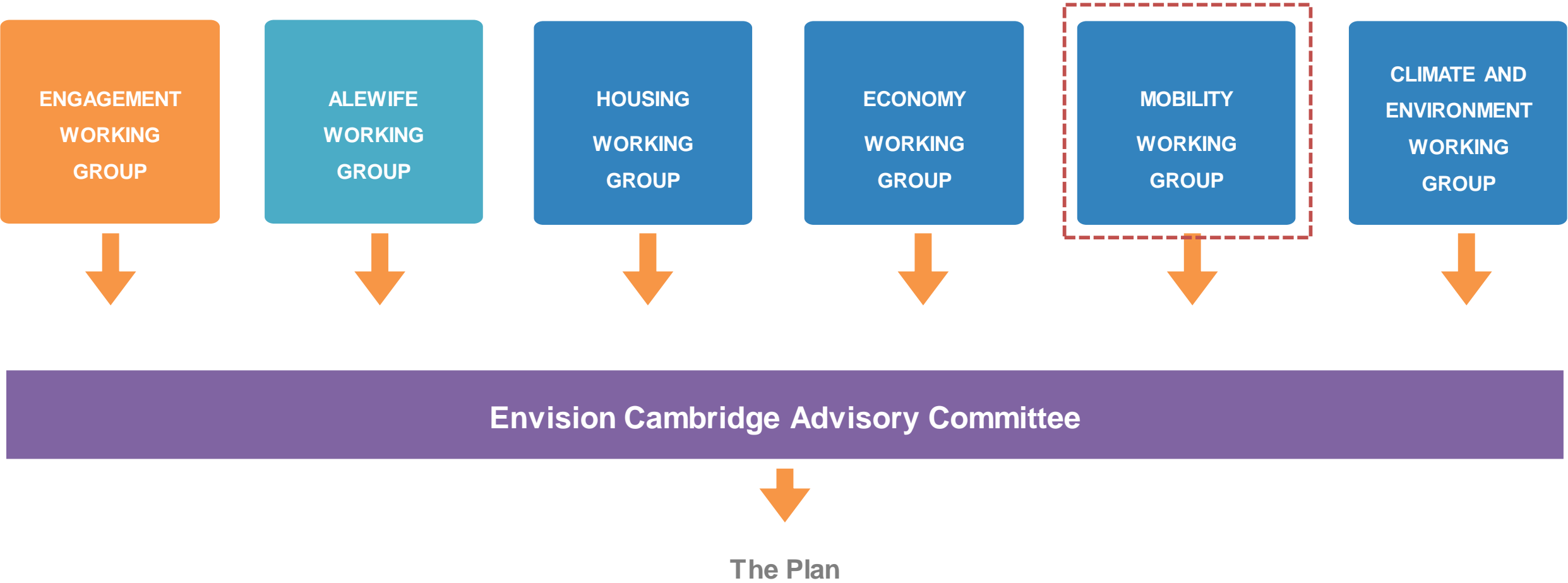
Project Framework

For definitions of key terms, please refer to the provided glossary.

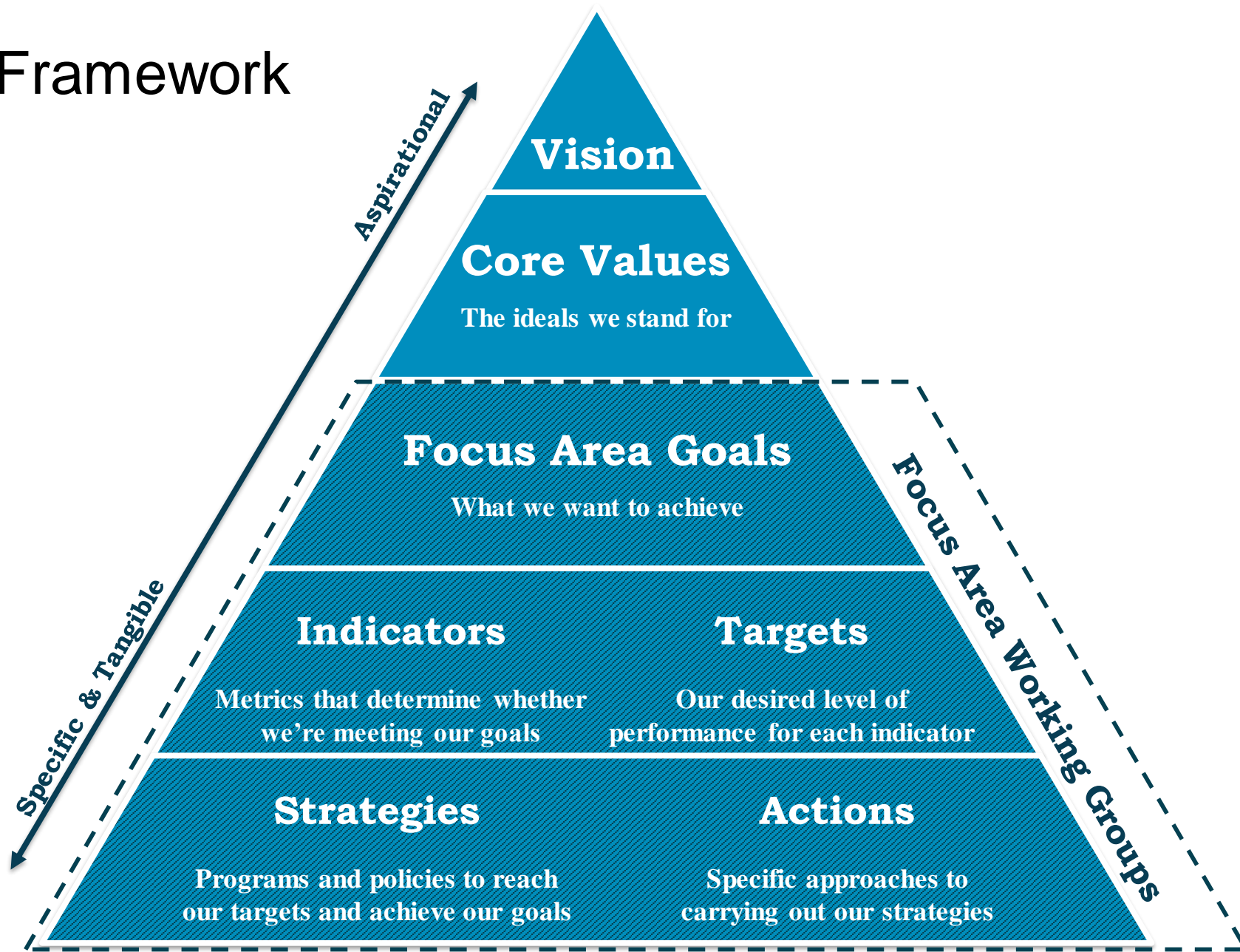


Mobility Working Group's Role

Six working groups will provide input to the Envision Cambridge Advisory Committee for plan development.



Planning Framework



Working Group Role

Six working groups will provide input to the Envision Cambridge Advisory Committee for plan development:

- Engagement
- Alewife
- Housing
- Economy
- **Mobility**
- Climate and Environment

WG Meeting #1 (May)

Discuss existing conditions, issues and opportunities, and existing City priorities



Refined goals

WG Meeting #2 (June)

Discuss draft strategies (programs, policies, and other tools) to achieve goals and related targets



Preliminary strategies & directional targets

WG Meeting #3 (July)

Further develop strategies and targets



Refined strategies & directional targets

Defining Terms: Project Framework Elements

Vision

The broadest aspirational statement; the summation of what Cambridge will be in the future.

“Cambridge is a forward-thinking, welcoming, and diverse city. We enjoy a high quality of life and thrive in a sustainable, inclusive, and connected community.”

Focus Areas

Traditional planning topics that structure our analyses.

Demographics, Housing, Economy, Urban Form, Climate and Environment, and Mobility.

Core Values

The ideas that are important to us and define us as a community.

Livability, Diversity and Equity, Economic Opportunity, Sustainability and Resilience, Community Health and Wellbeing, Learning

Defining Terms: Project Deliverables

Goals

Aspirational statements specific to core values. Often comparative (“the most” or “the best”), though not necessarily. Mostly qualitative. Aligned with the vision statement.

Targets

Measurable, concrete, and time-bound objectives, which are tied to data-driven indicators. May help achieve one or several goals. Can be specific or directional.

Strategies

Policies and tools that could be adopted to meet specific targets and thus accomplish goals.

Indicators

Quantitative measures used to assess our performance towards targets. Indicators are not aspirational or normative. They may be derived from existing data series or tracked by the City over time.

Scenarios

Physical development scenarios that provide a structure to test the implications of planning choices.

Recommendations

Informed choices derived from “what if” scenarios, collectively identified as the best way to work toward our shared vision.

Vision

What we want to be

“Cambridge is a forward-thinking, welcoming, and diverse city. We enjoy a high quality of life and thrive in a sustainable, inclusive, and connected community.”

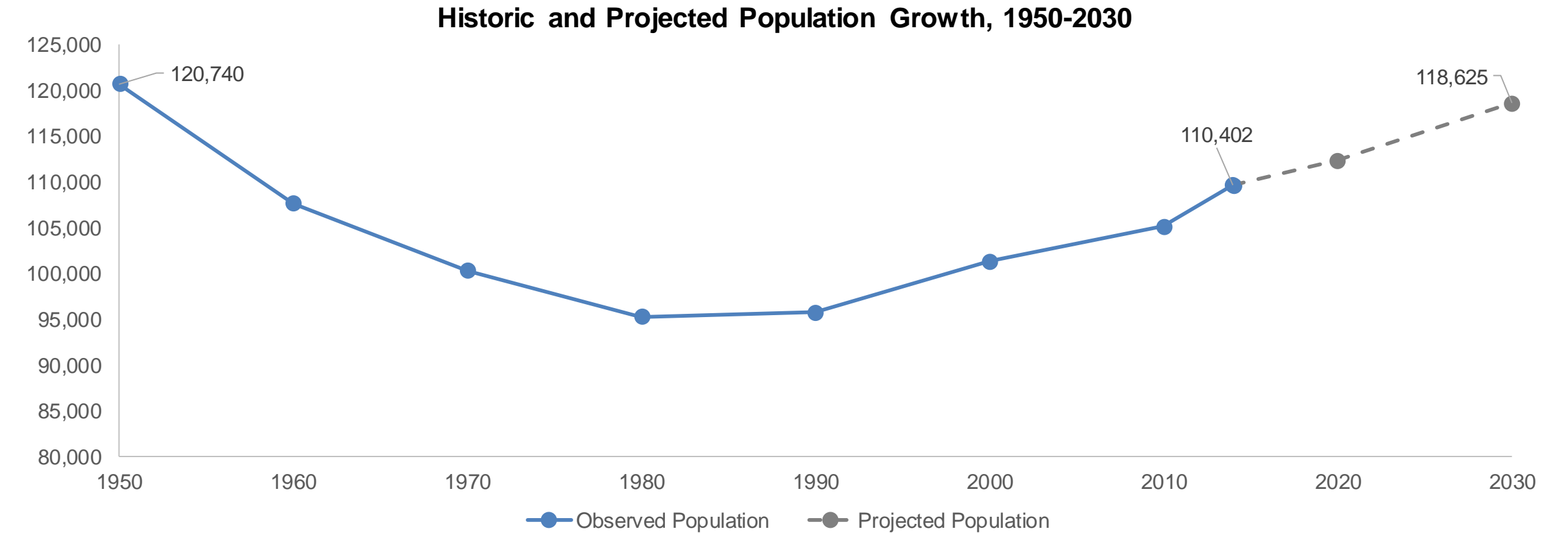


Existing Conditions



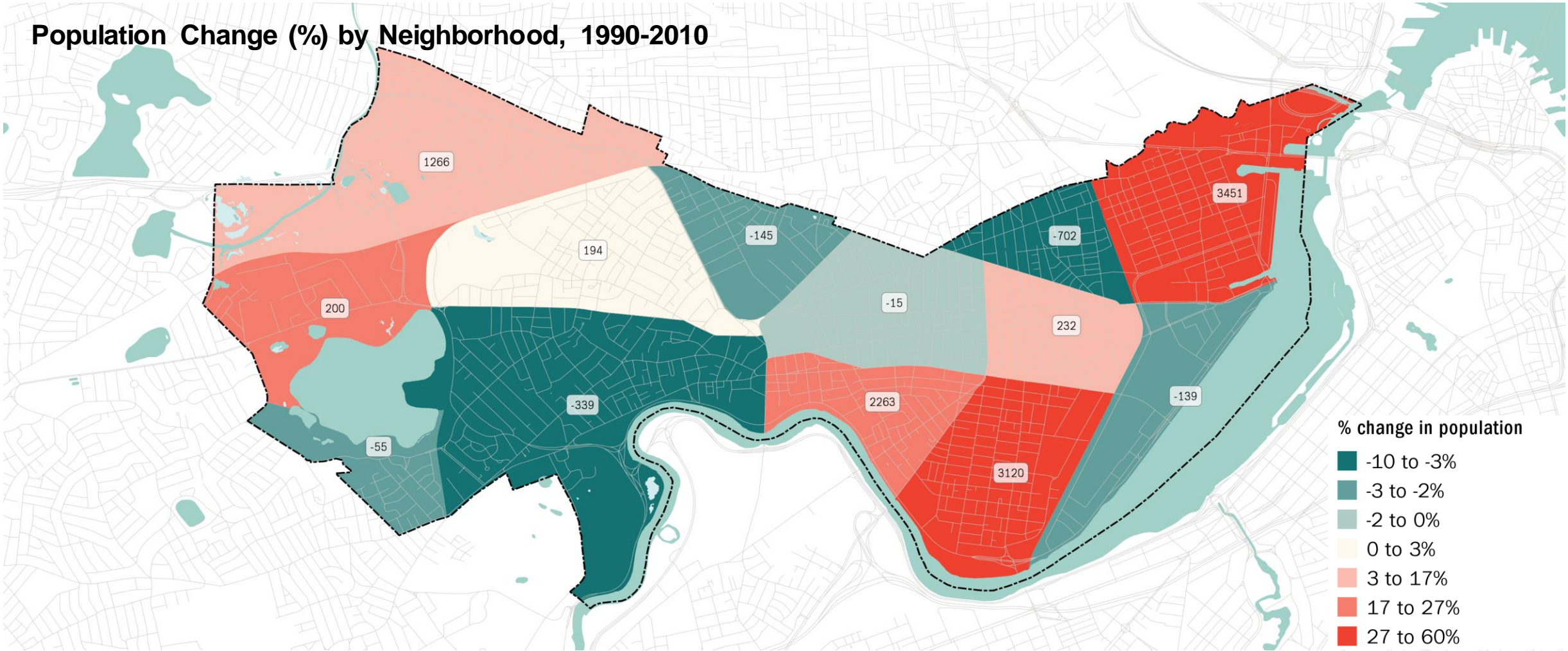
Existing Trends

Cambridge’s population has rebounded since 1980, and is projected to be close to exceeding its mid-century peak by 2030.



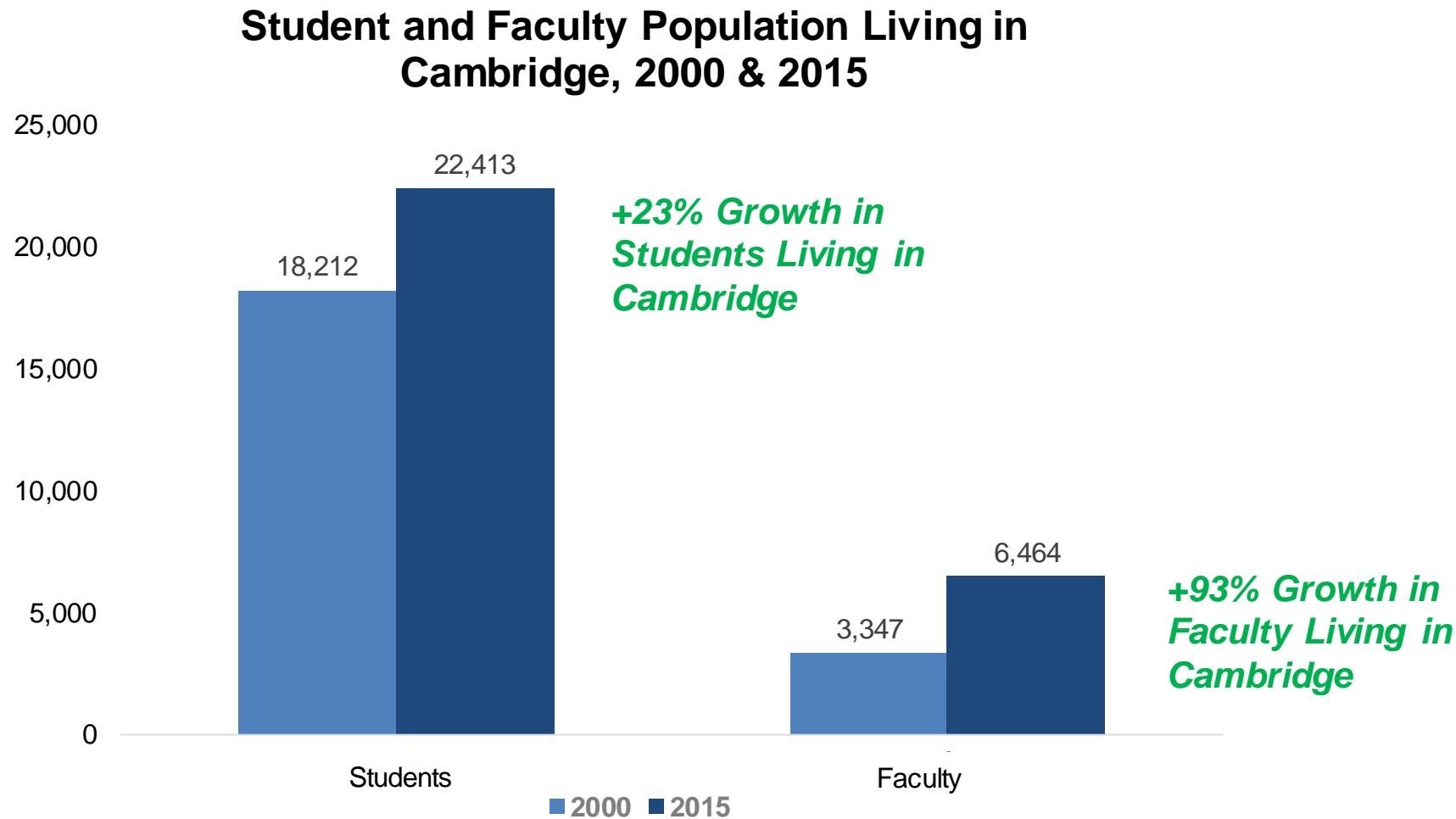
Source: Census 2011 Statistical Abstract; 2014 MAPC Growth Projections (Strong Core); 2015 Census Population Estimates

Between 1990-2010, population growth was concentrated in specific neighborhoods, including East Cambridge, Cambridgeport, Riverside, and North Cambridge/Alewife.



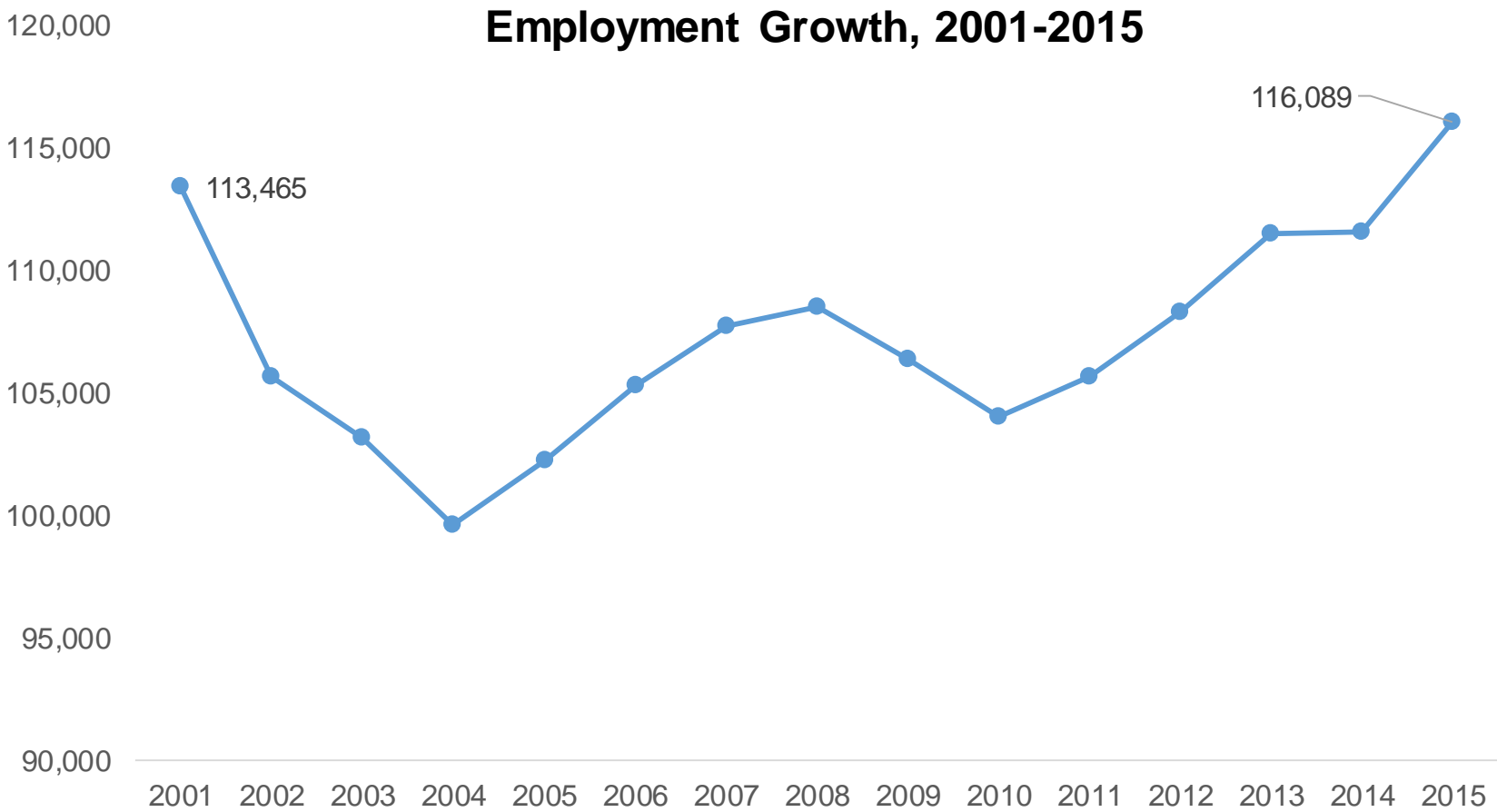
Source: U.S. Census Bureau 1990 and 2010 Population Counts

Part of this growth has been driven by Cambridge’s expanding educational institutions, which have resulted in more students and faculty living in Cambridge.



Source: Annual Town-Grown Reports

Cambridge's robust job growth, especially in knowledge economy industries such as life sciences and tech, is also fueling residential growth.

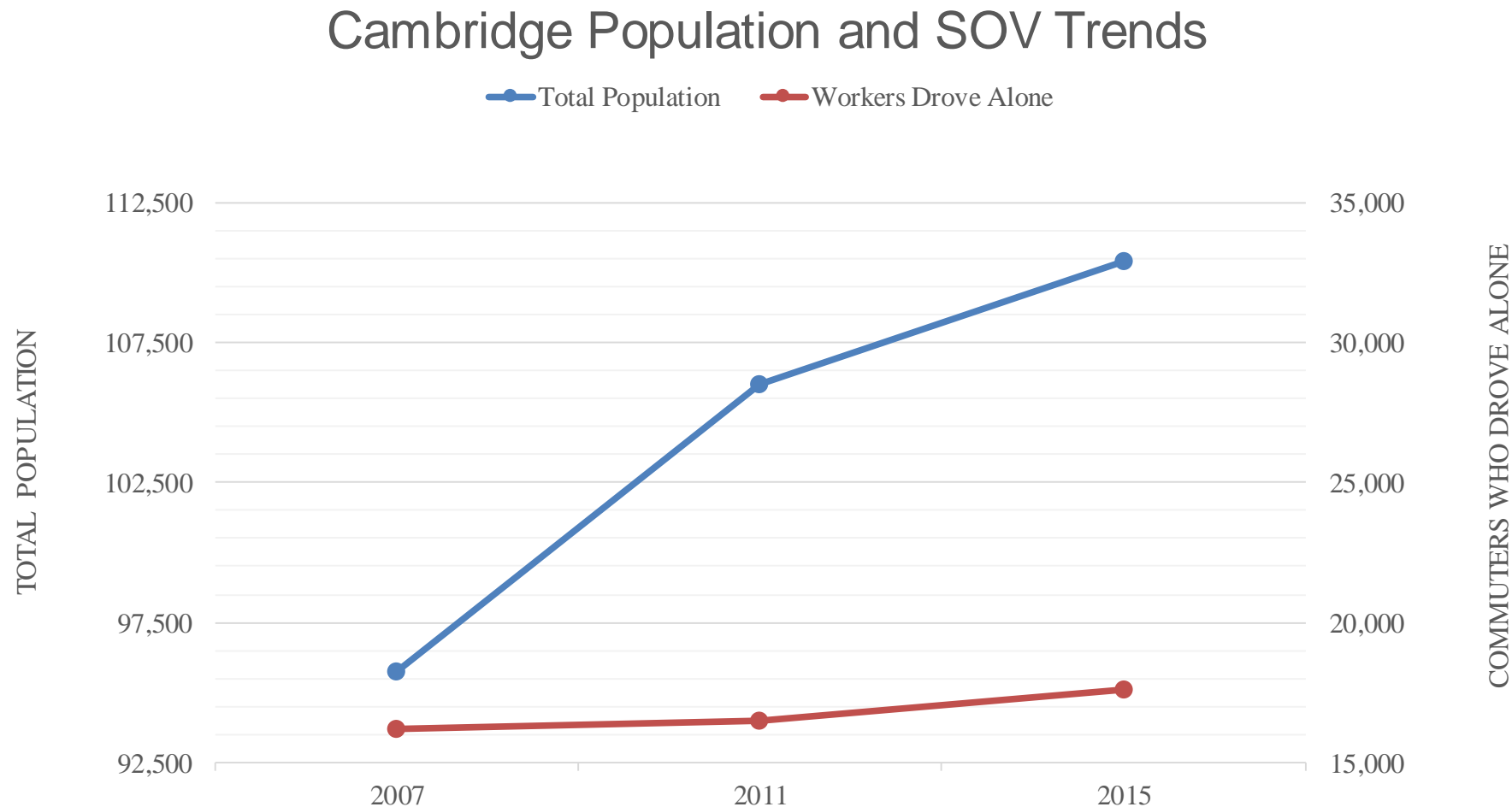


Kendall Square, the premiere location for life science and tech tenants in the region



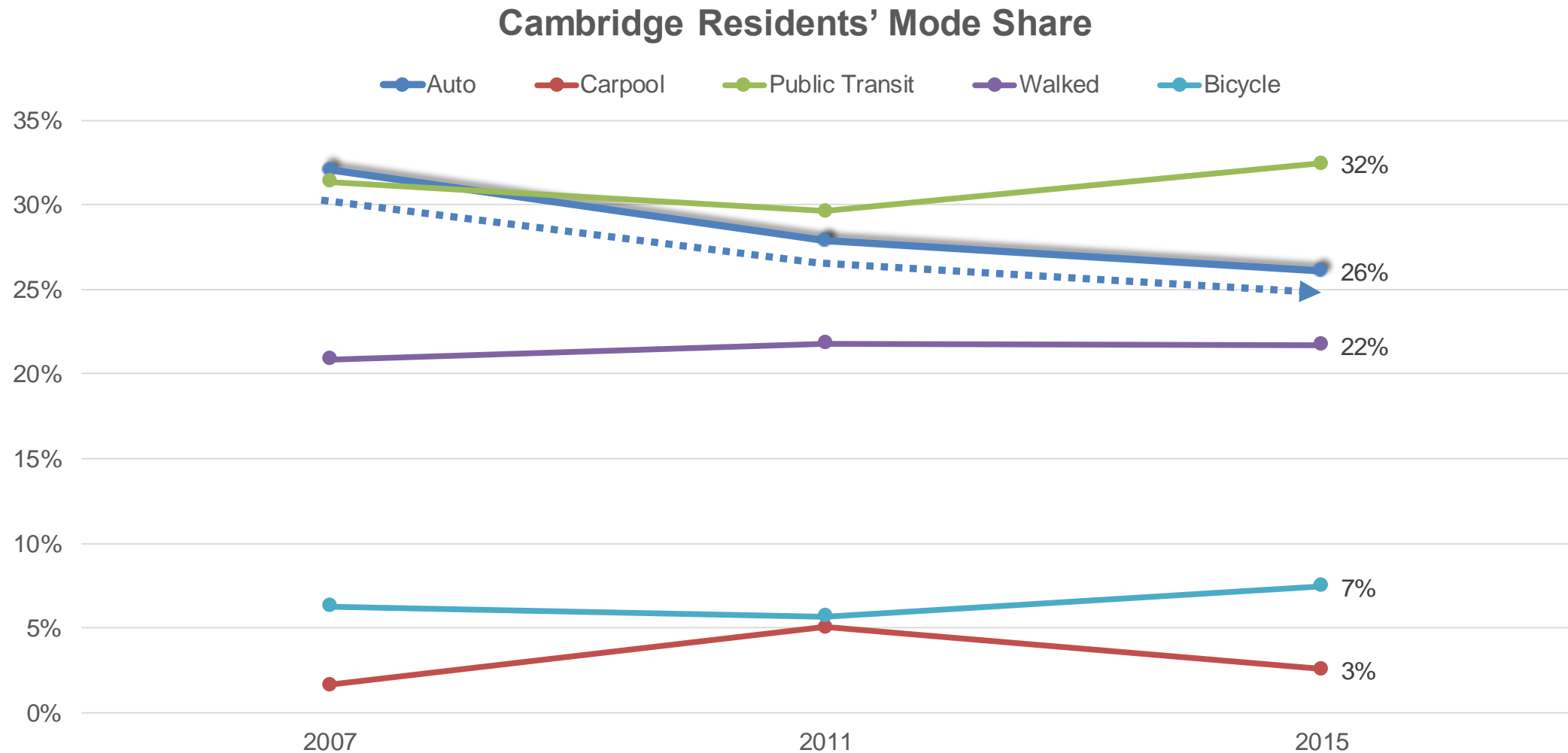
Source: Massachusetts Executive Office of Labor and Workforce Development

While the population grew 15% in Cambridge between 2007 and 2015, the total amount of workers who drove alone to work increased by less than 2%, while the overall share of commuters who drove alone dropped.



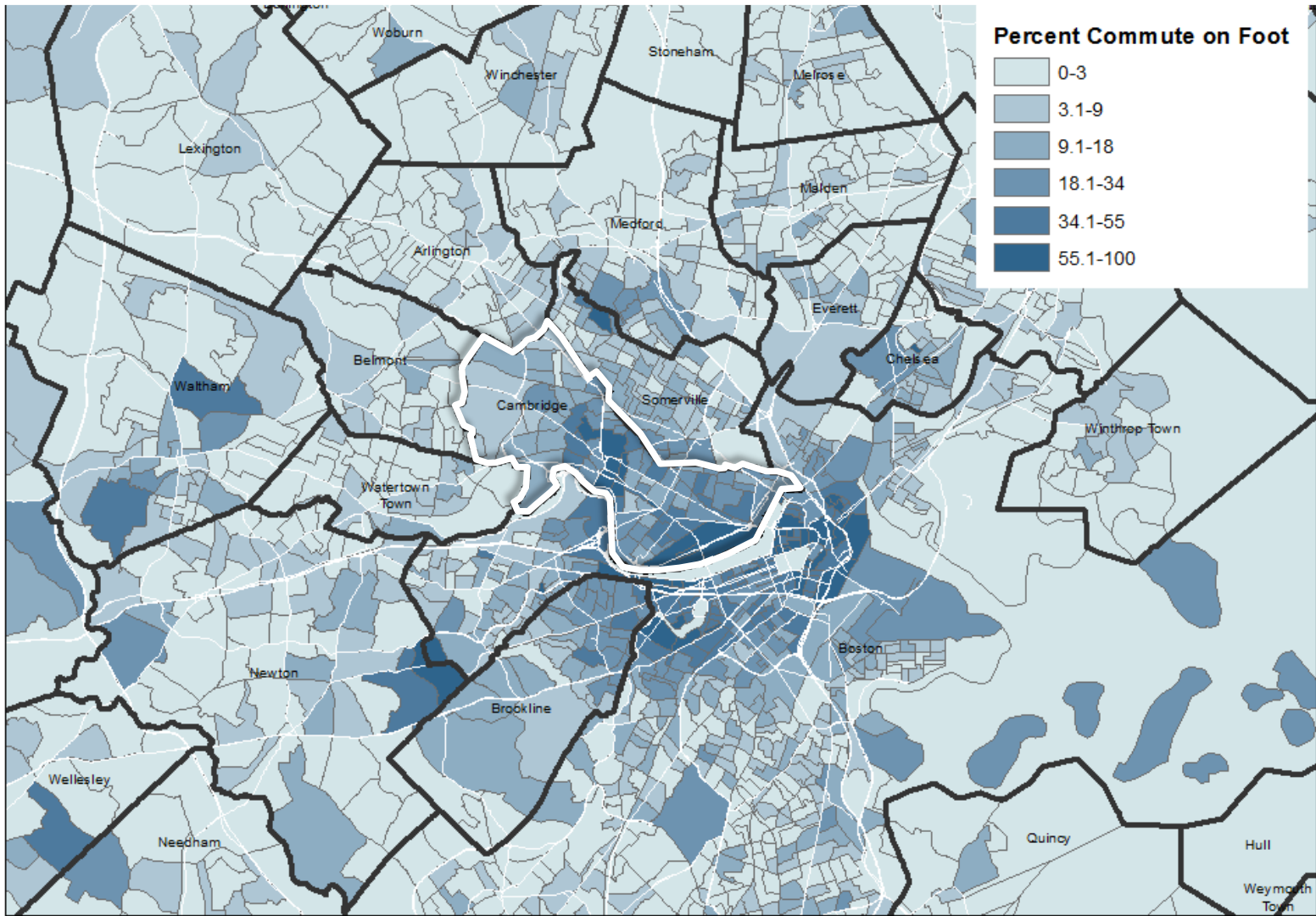
Source: 2007, 2011, 2015 ACS 1-year estimates

Non-auto commuting is increasing at the same time as the percentage of Cambridge residents who drive alone to work continues to decline.



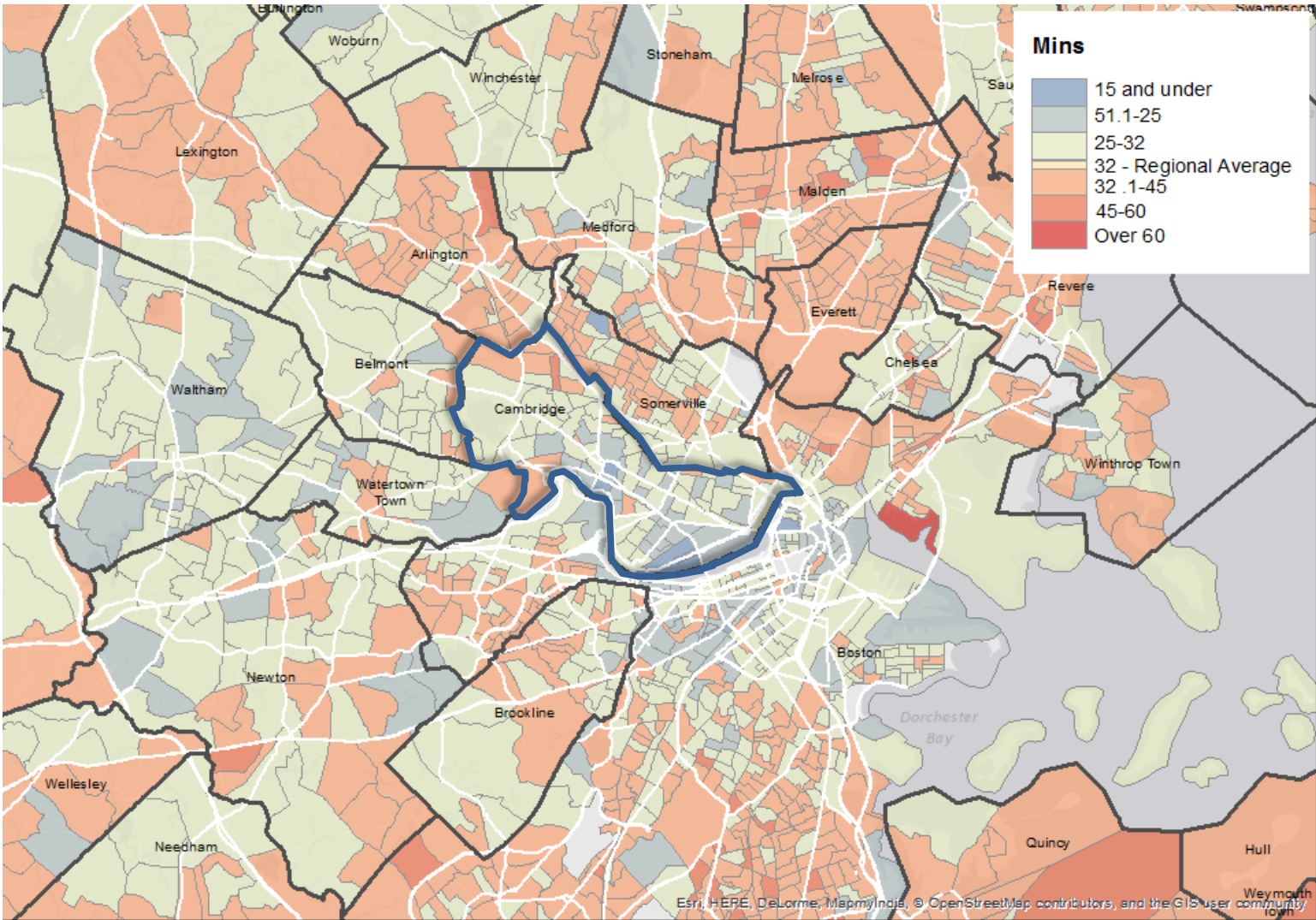
Source: 2007, 2011, 2015 ACS 1-year estimates

Cambridge residents' walk to work more often than neighboring metro Boston communities.



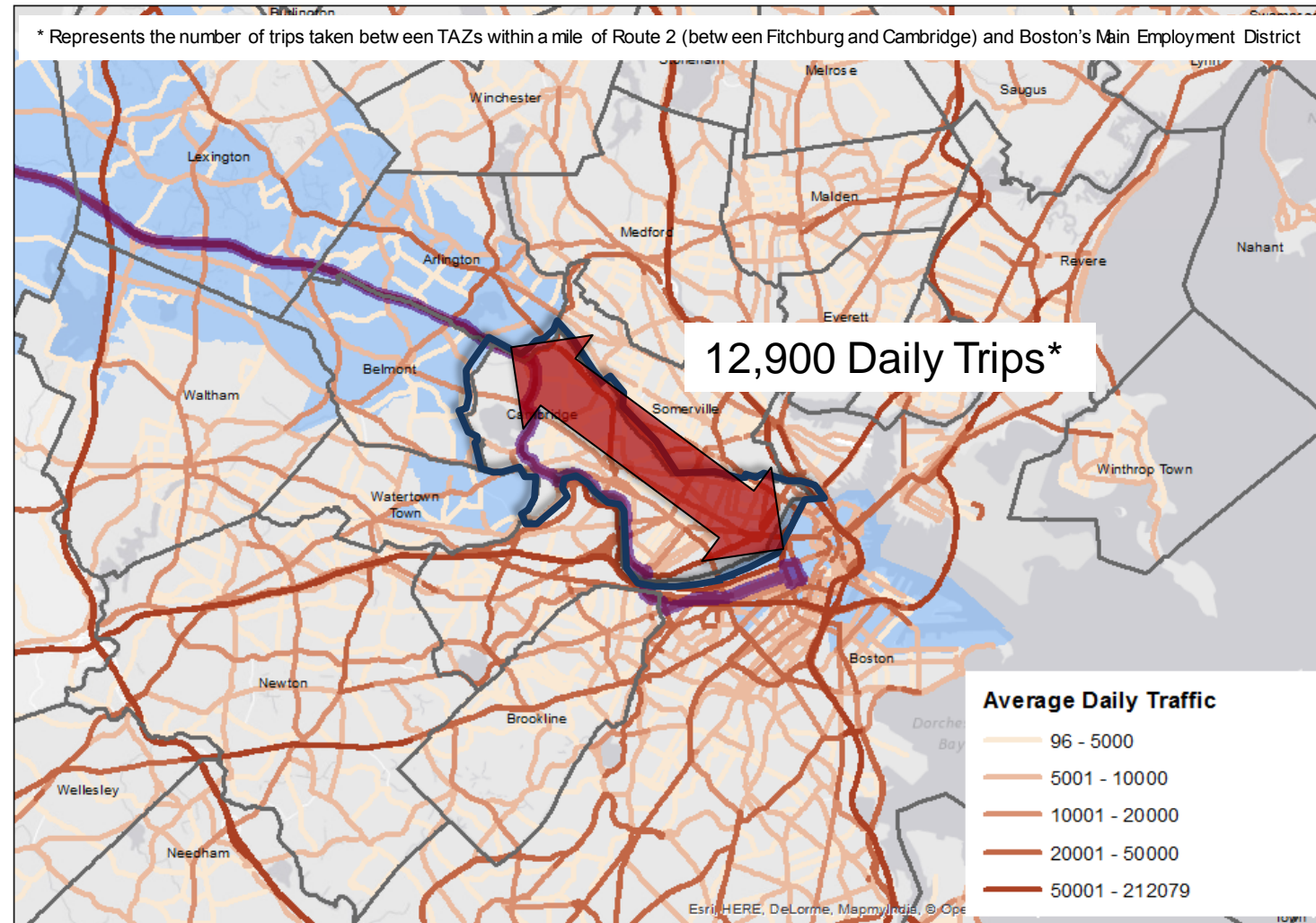
Source: 2013 ACS 3-year estimates

Average commute times for residents in Cambridge are below the regional average of 32 minutes.



Source: 2014 ACS 5-year estimates

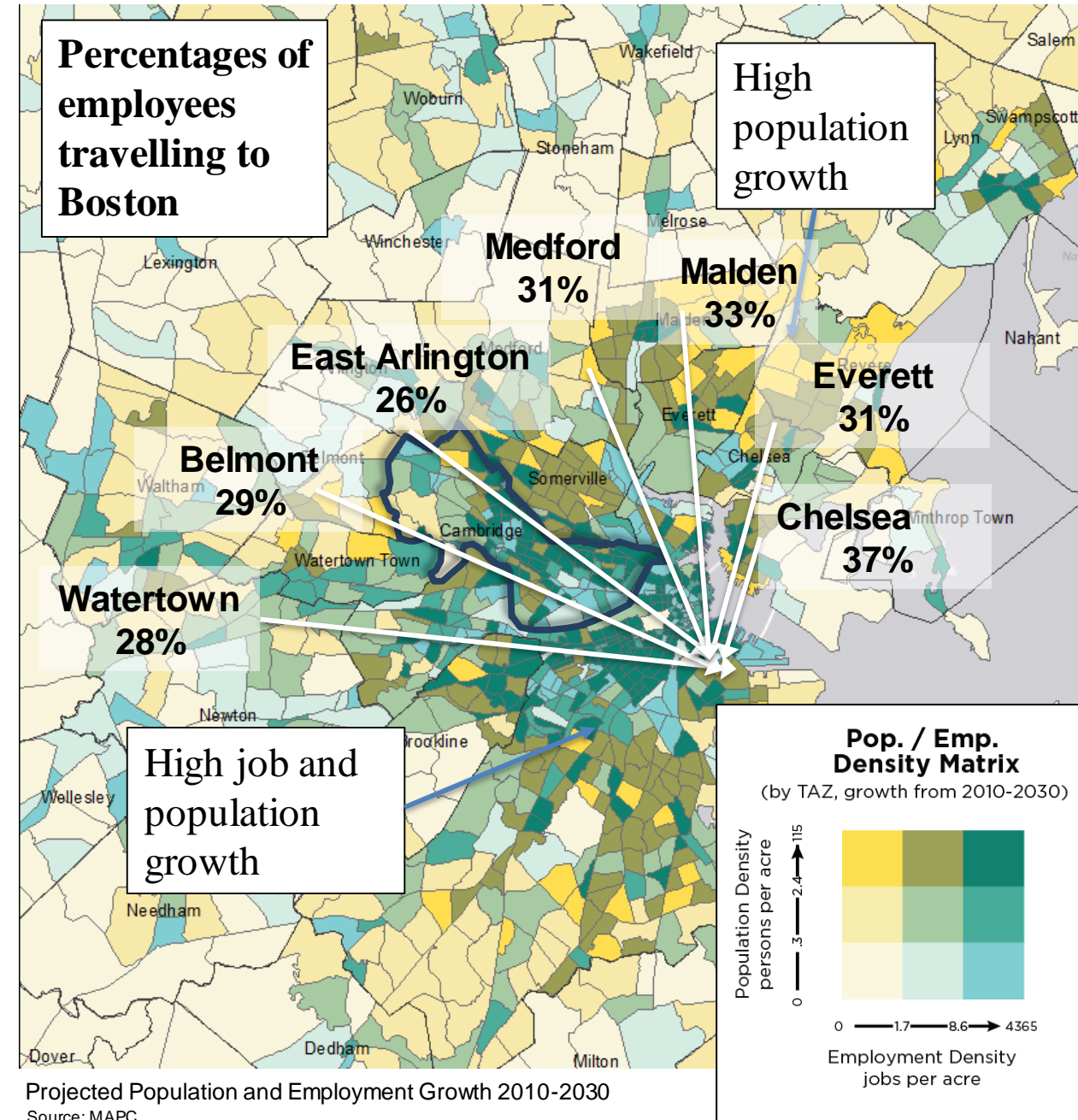
Thousands of commuters travel on Route 2 to Boston across and around Cambridge every day. Cambridge experiences a large portion of the cut through traffic from northwestern communities most heavily along Alewife Brook, Fresh Pond, Memorial Drive and the Prospect/River-Western corridor.



Note: Map to be replaced with vendor GPS data

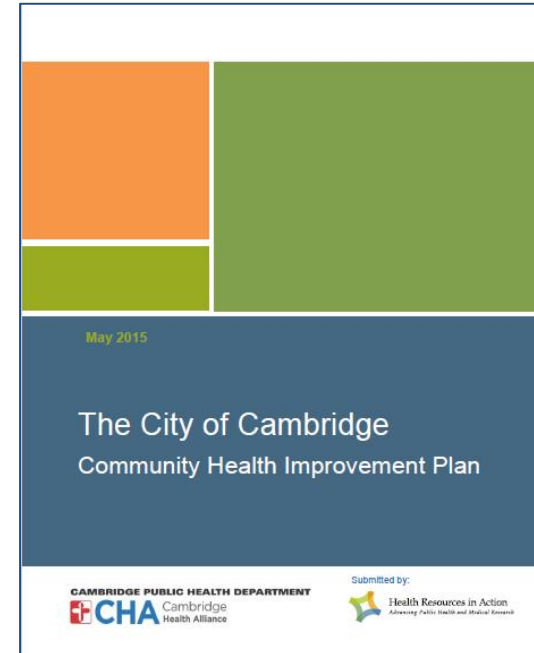
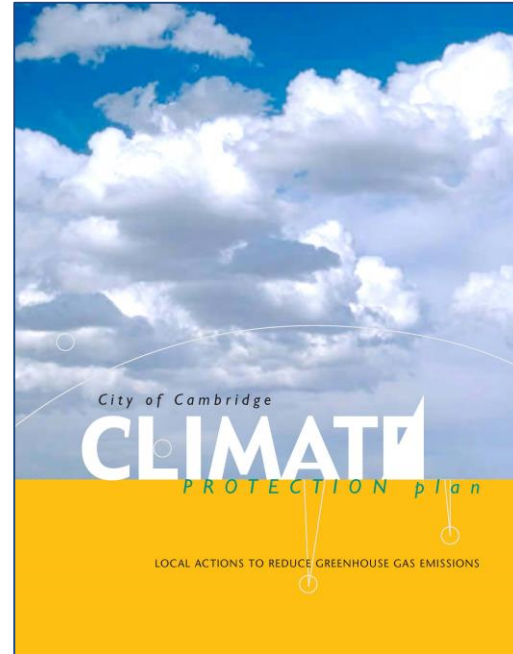
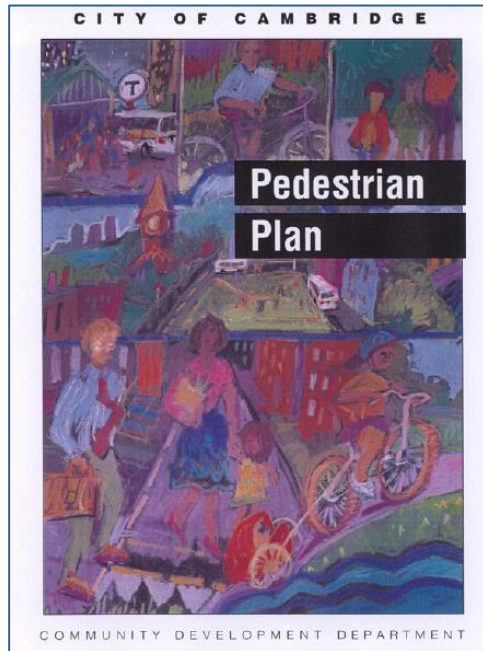
Who Will Travel Through Cambridge?

- Cambridge has high projected population and employment growth—great for short trips
- Current employment hubs will continue to have job growth—all well-served by transit & bikeways
- Cities northeast of Cambridge have the highest population growth with lower rates of job growth—they will need to commute more
- A quarter to a third of surrounding cities' workers travel to Boston for their jobs, which may add trips through Cambridge as job availability increases



Mobility in Cambridge Today

Cambridge has been working to reduce traffic growth for years



- Vehicle Trip Reduction Ordinance (1992)
- Parking and Transportation Demand Management Ordinance (1998)
- Pedestrian Plan (2000)
- Climate Protection Plan (2002, 2017)
- Community Health Improvement Plan (2015)
- Bicycle Plan (2015)
- Vision Zero



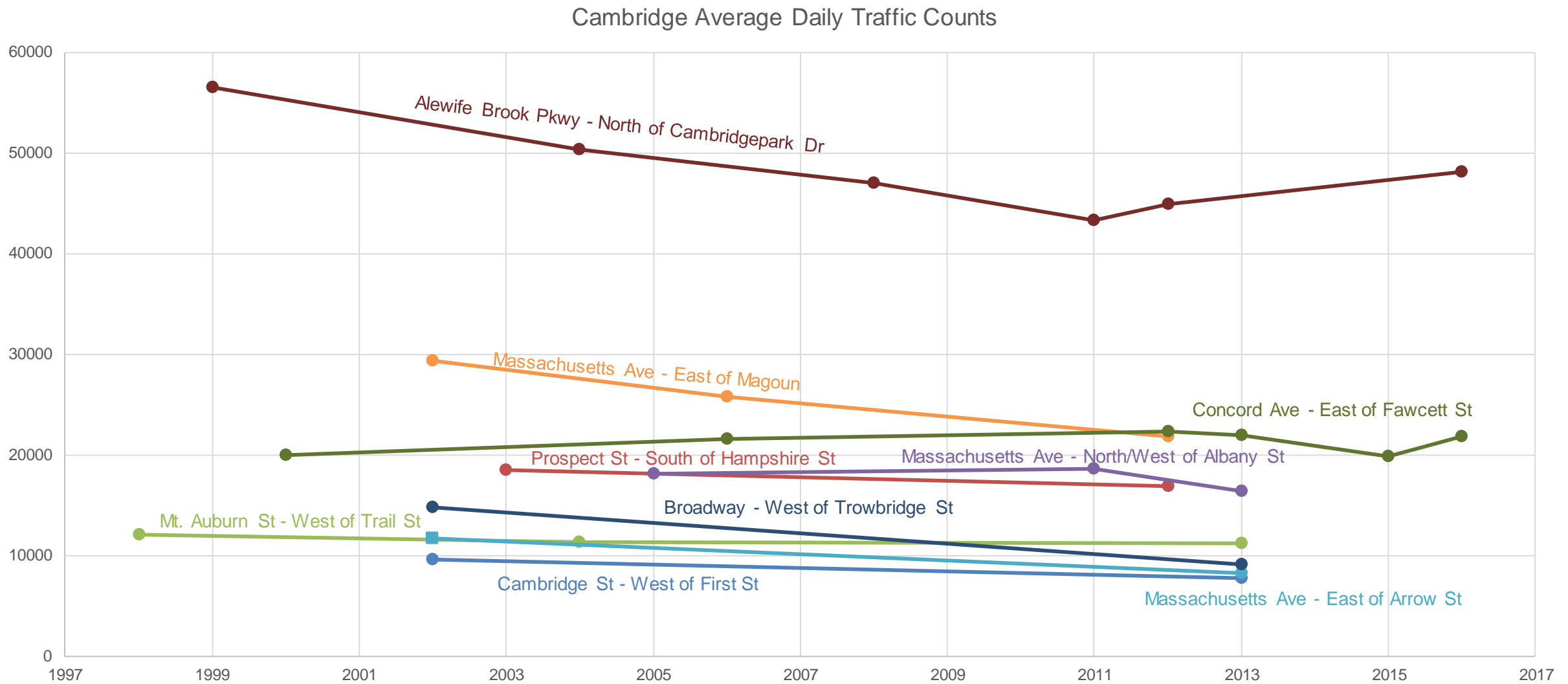
Transportation multimodal infrastructure



Great things happening in Cambridge

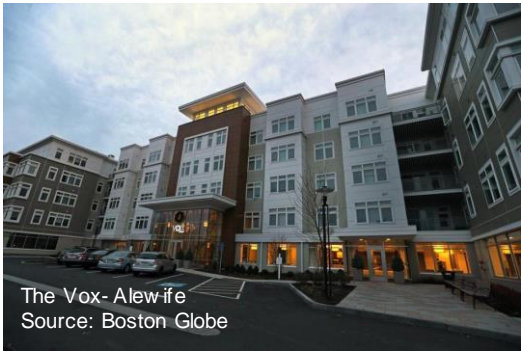


Traffic volumes have stayed flat or declined on major streets in Cambridge over the last 10-15 years.



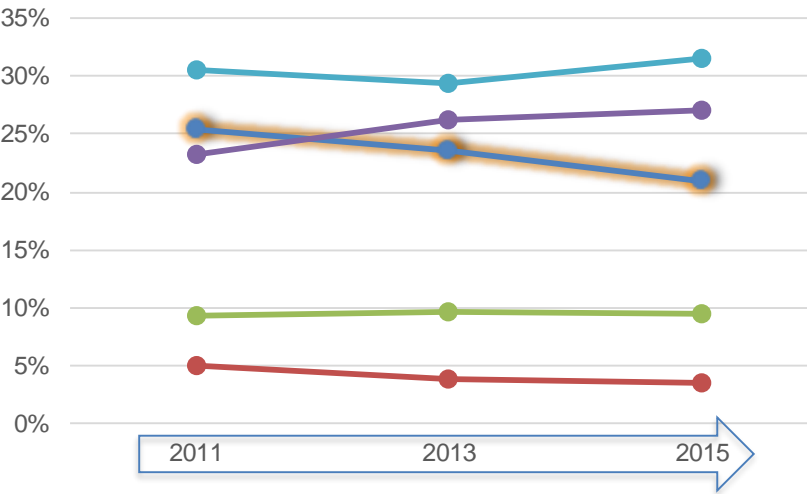
Source: City of Cambridge Open Data: Average Daily Traffic Counts

New development has been primarily concentrated in formerly industrial areas that are undergoing conversion to mixed uses, such as near Kendall, eastern Cambridgeport, and in Alewife/the Quadrangle.

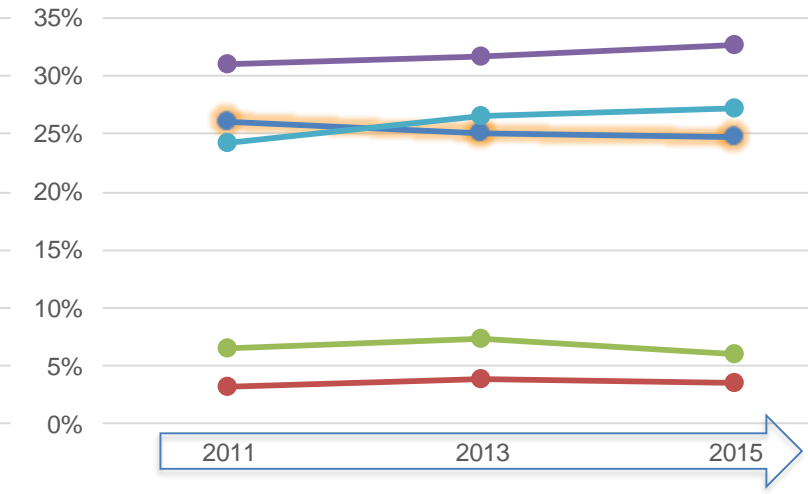


Mode Share 2011 to 2015 (ACS)

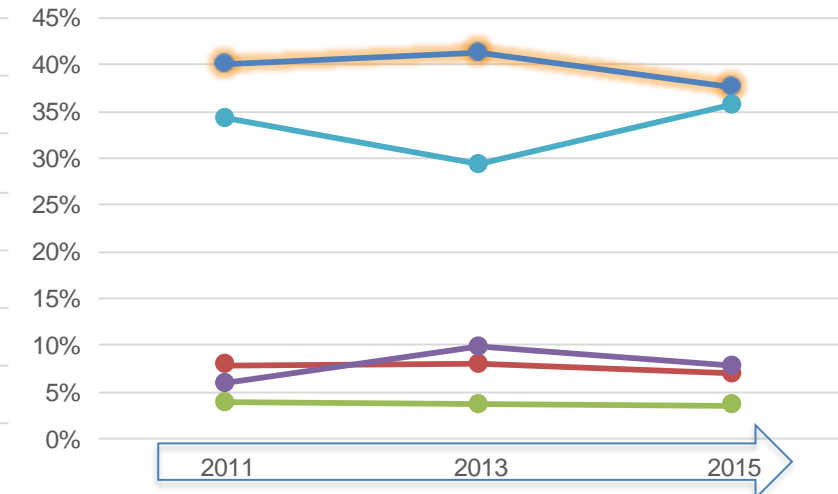
Cambridgeport



Kendall/East Cambridge



Alewife



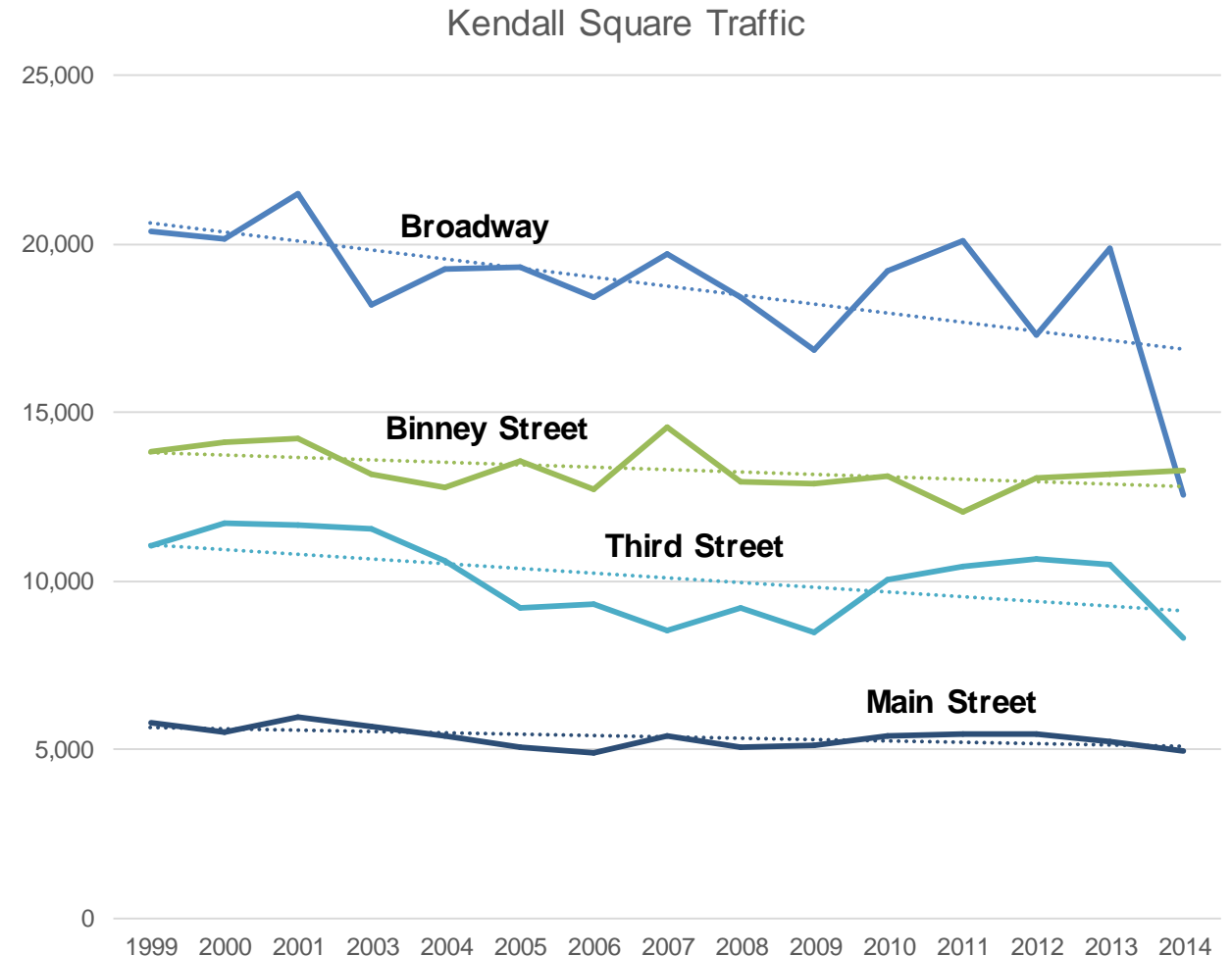
Source: 2011, 2013, 2015 ACS 5-Year Estimate Means of Transportation to Work

Auto Carpool Bicycle Walked Public Transit

40% growth in building square footage in Kendall Square has not added to regional traffic. This is largely due to PTDM measures, infrastructure investments, and existing buildings switching to sustainable modes

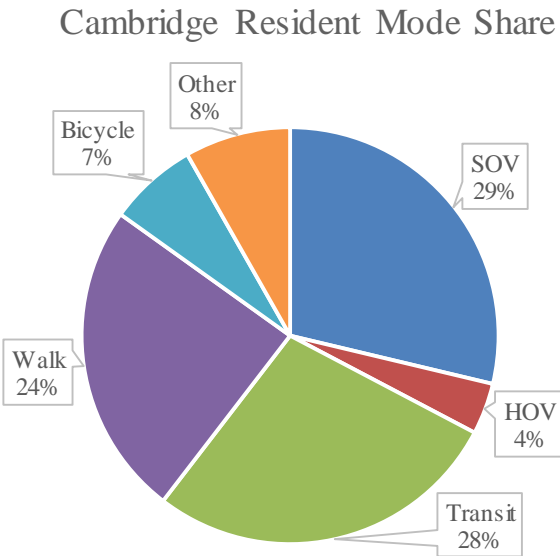


Daily traffic volumes in Greater Kendall have remained consistent or been reduced, even after almost 6.5 million square feet of development.

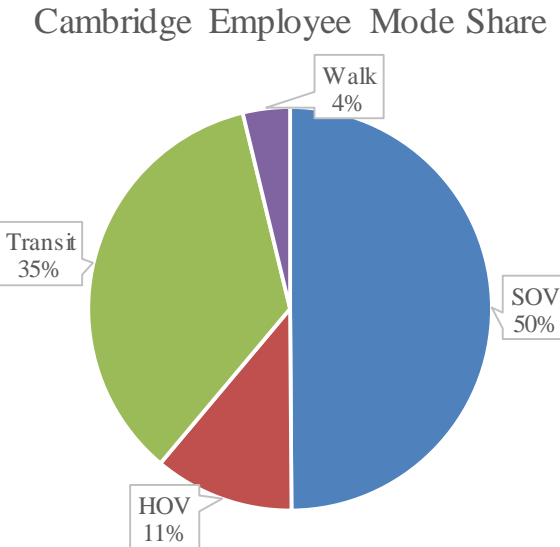


Source: City of Cambridge Open Data: Average Daily Traffic Counts

Cambridge Mode Share

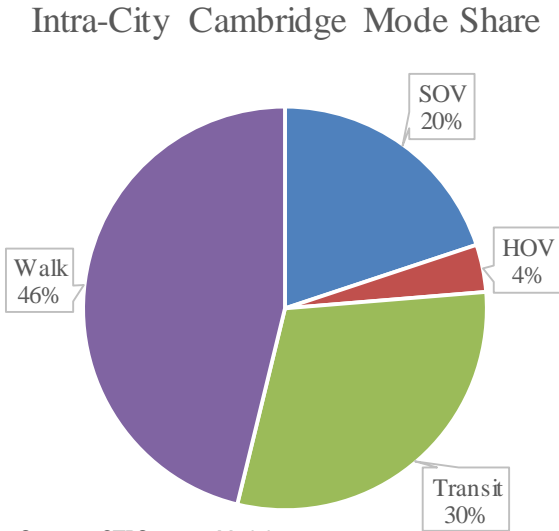


Source: ACS 2014



Source: CTPS 2012 Model

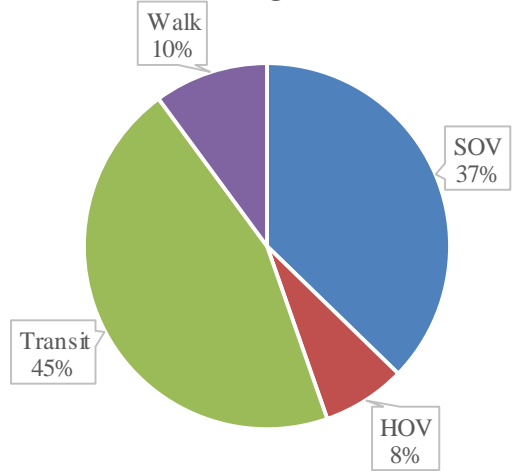
Note: Model does not include bicycle trips



Source: CTPS 2012 Model

Note: Model does not include bicycle trips

Cambridge Employees Mode Share From Surrounding Communities*



Source: CTPS 2012 Model, On The Map 2014

Note: Model does not include bicycle trips

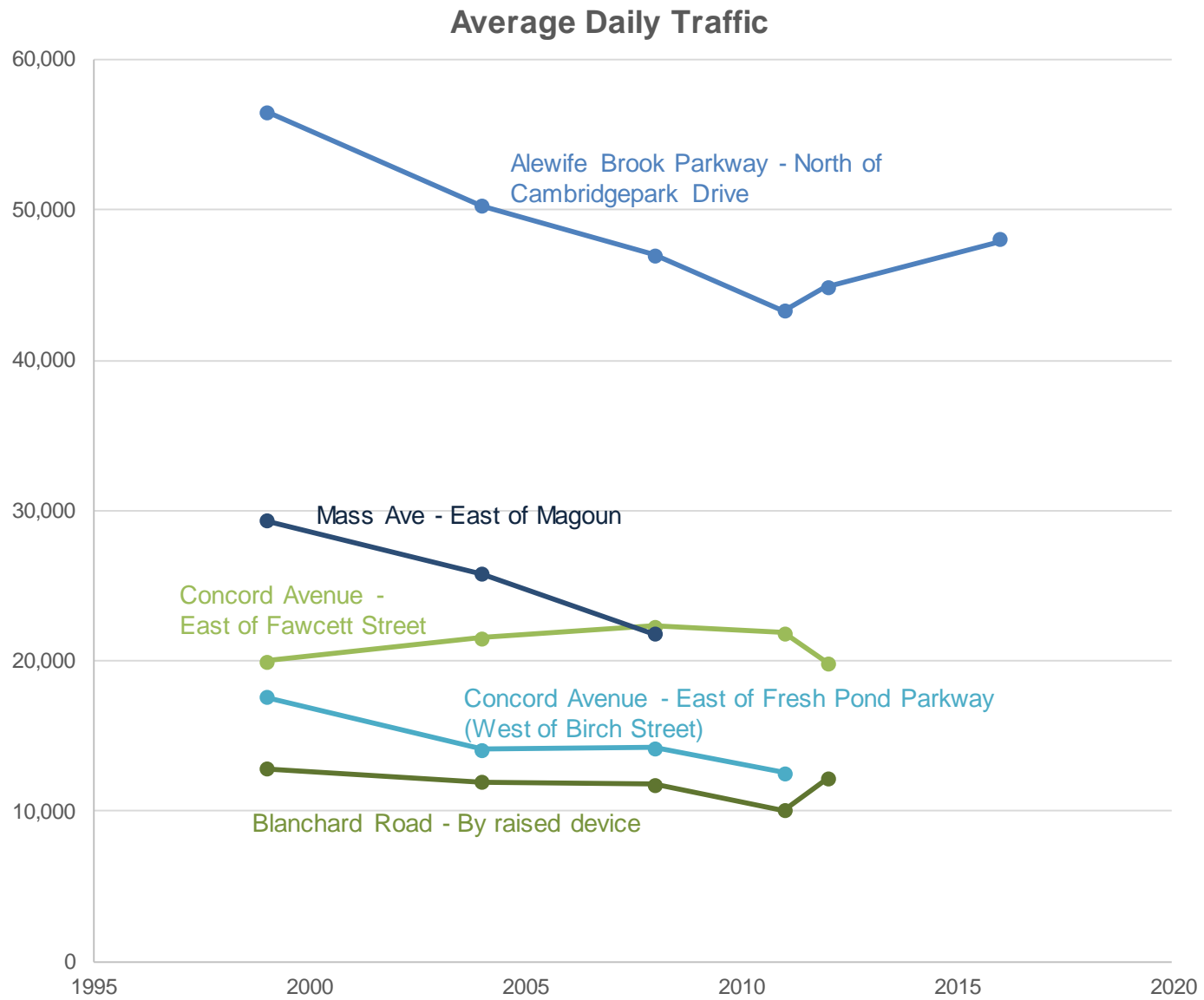
Cambridge’s mixed-use environment facilitates a high intra-city working-living community. 28% of residents are also employed in Cambridge, and 80% use sustainable modes to travel to work.

*Surrounding Communities include Arlington, Belmont, Boston, Brookline, Somerville and Watertown

Alewife

Traffic Trends

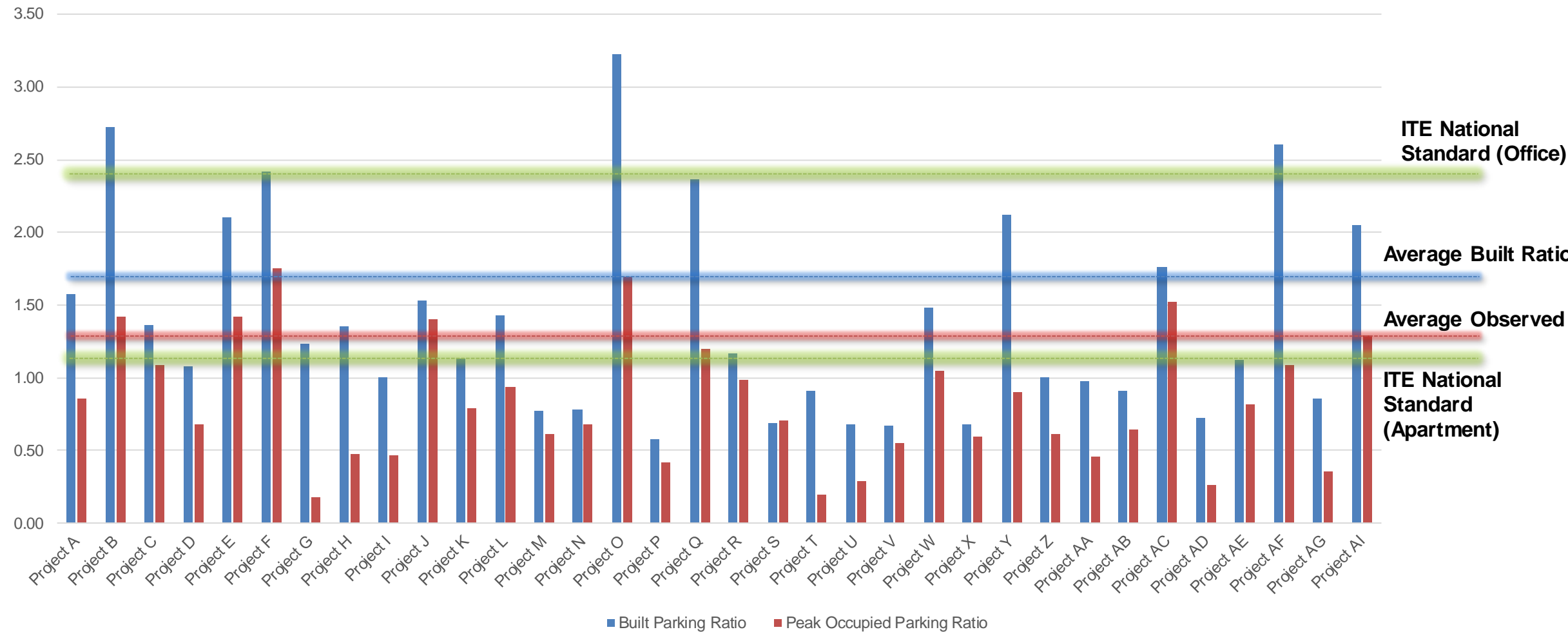
- Regional traffic still exists in and around Alewife
- Overall a flat line in volume trends since around 2002/2003
- ABP has returned to pre-recession levels



Source: Provided by City of Cambridge ATR Counts 1999-2016

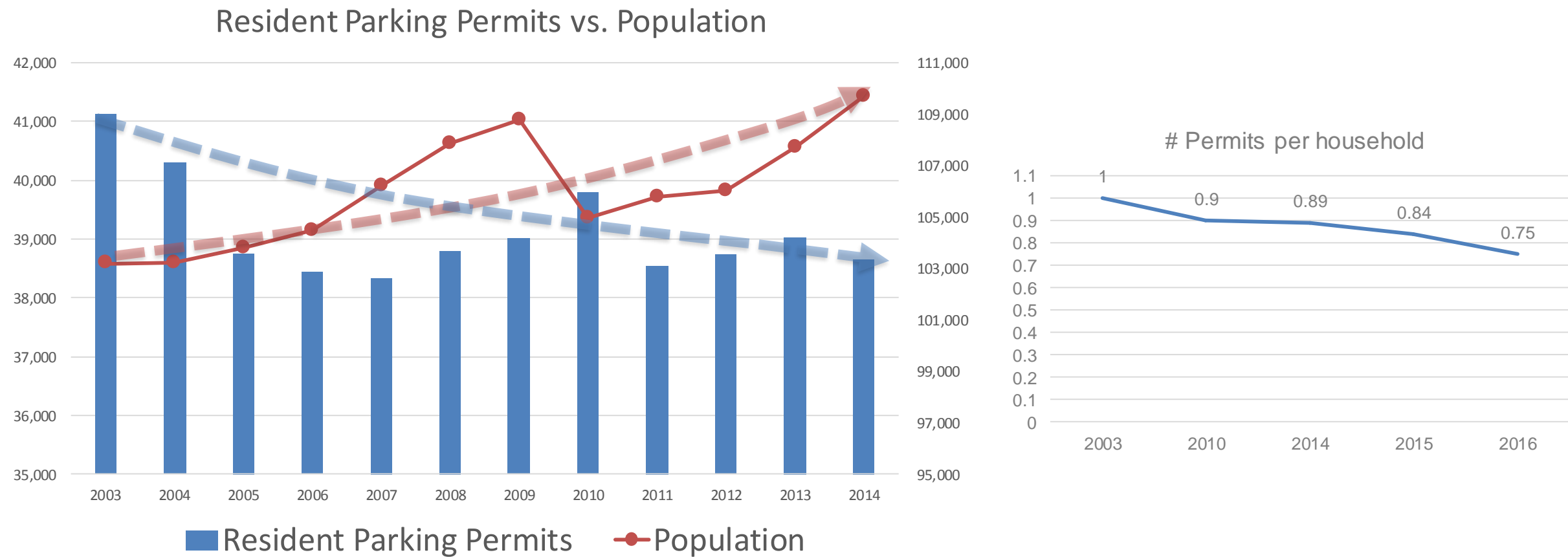
Parking demand below national standards

Built vs. Observed Parking Ratios



Source: Cambridge PTDM

With general increase in population growth, there has also been a general decline in resident parking permits

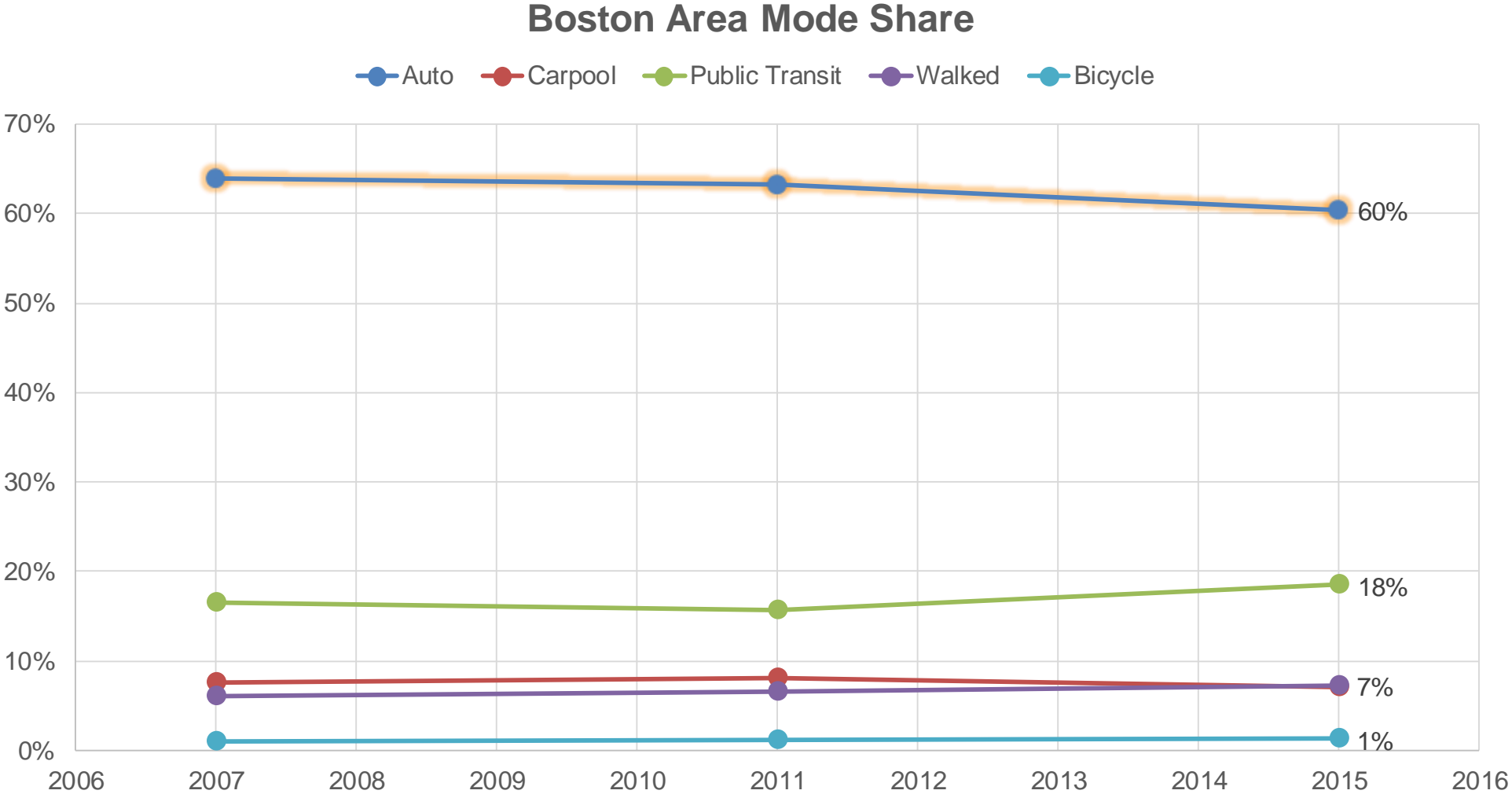


Source: City of Cambridge, ACS

Challenges and Opportunities

Who does Cambridge's mobility system serve?

The percentage of workers who drove alone in the Boston area has steadily decreased between 2007 and 2015, while the percent who walked and took public transit has increased. Still, 60% of Boston area commuters drove alone to work in 2015.

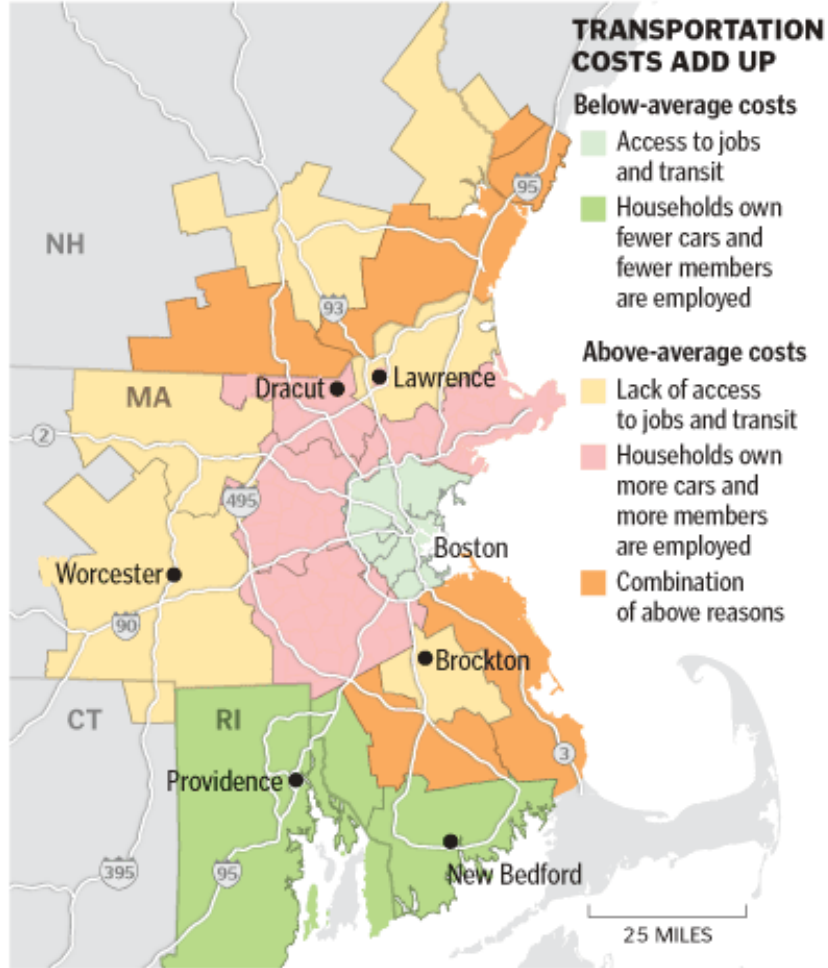


Source: 2007, 2011, 2015 ACS 1-year estimates

Who does Cambridge's mobility system serve?

Combined housing and transportation costs in Cambridge are low compared to the region, but disparities still create a burden for many

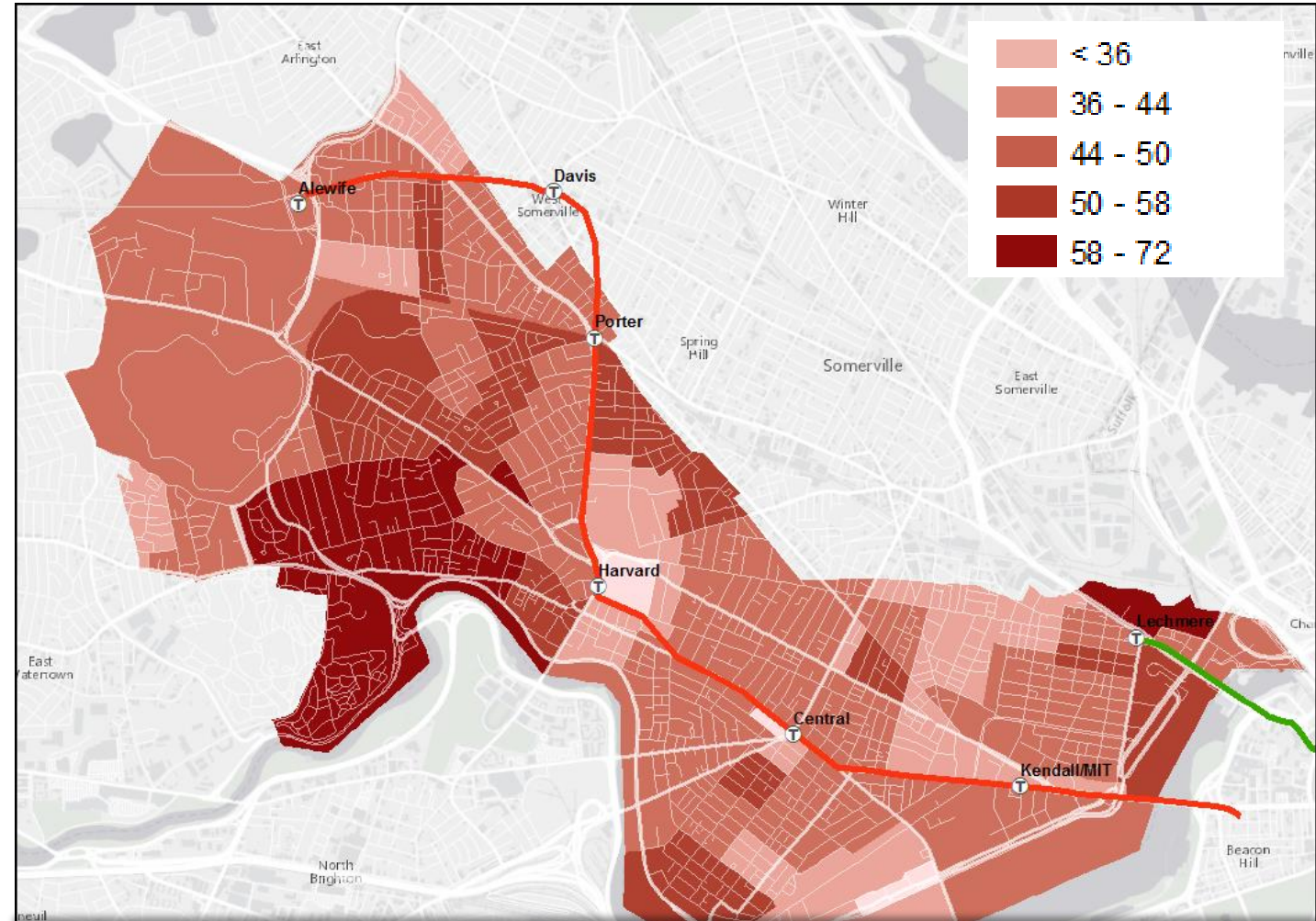
Average Housing and Transportation Cost per Household



SOURCE: Urban Land Institute's Terwilliger Center for Workforce Housing

GLOBE STAFF

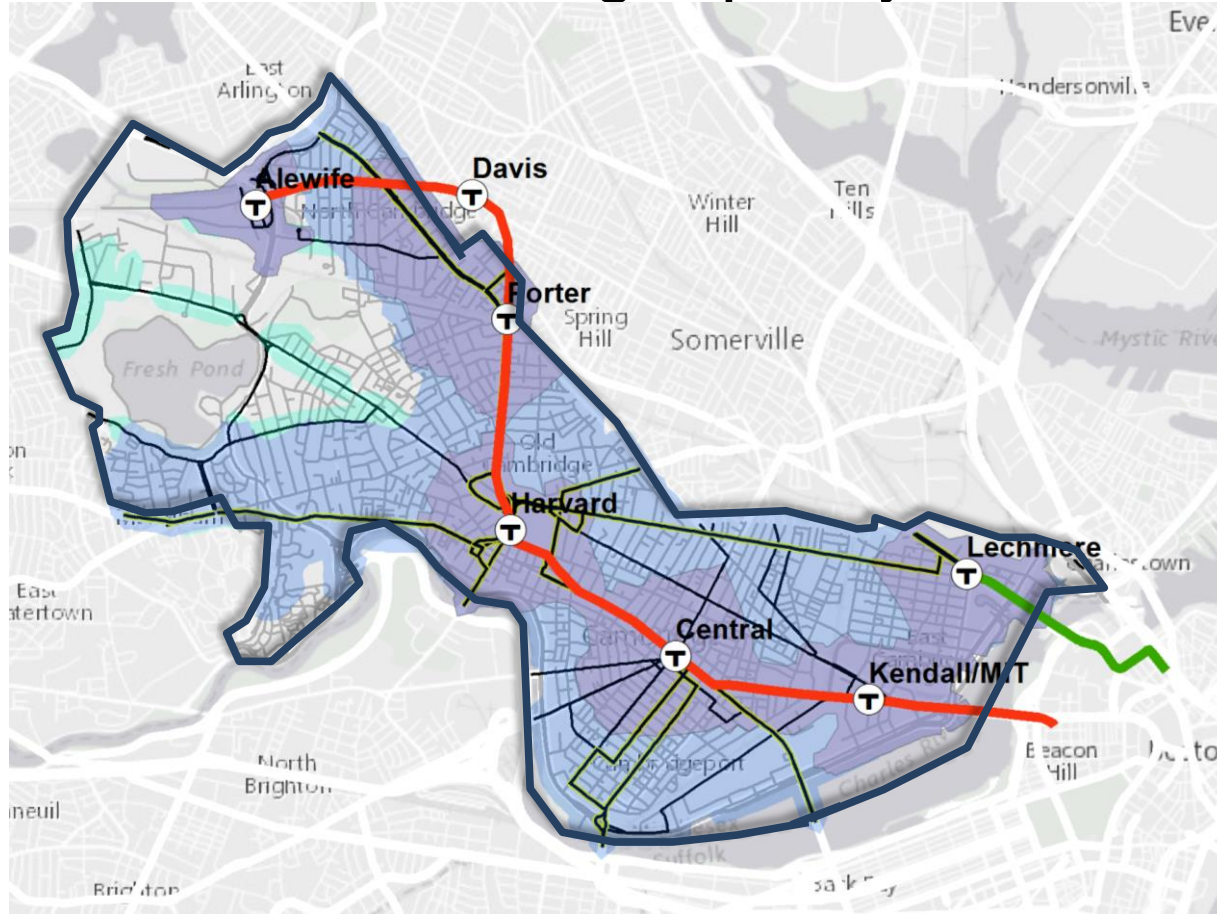
Housing and Transportation Costs as % of Income (for the regional typical household)



13% of Cambridge residents spend more than 50% of income on housing and transportation costs

Source: H + T Index

Residents near high quality transit drive less

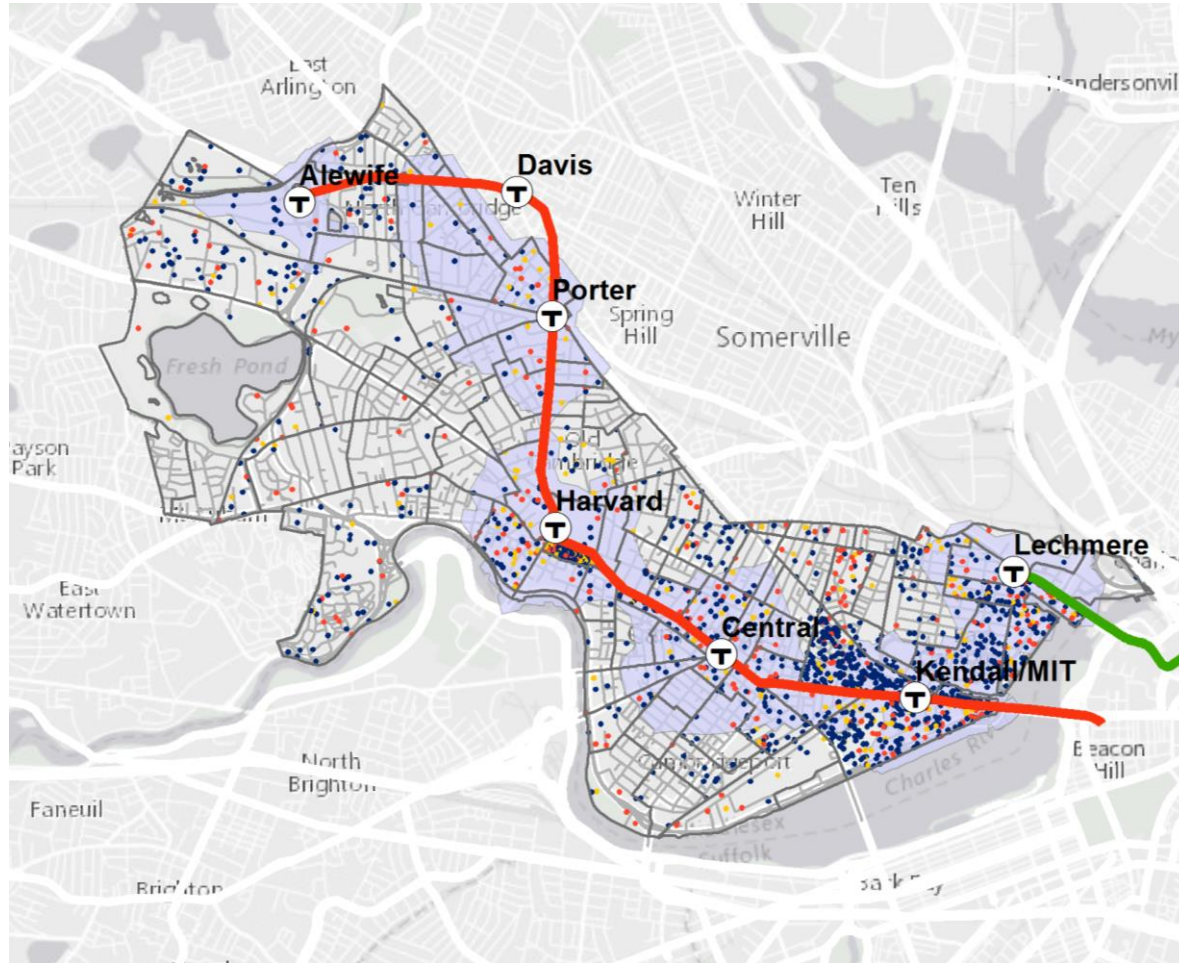


- 91% of all Cambridge Residents have access to transit*
- 46% of all Cambridge residents live within a ten minute walk of a Rapid Transit Stop
- Frequency and quality matter
 - 72% of workers near rapid transit don't drive to work
 - 69% of workers near frequent service (rapid transit and frequent bus) don't drive to work
 - Only 49% of workers near infrequent bus service don't drive to work

*Defined by residents within a ten minute walk of rapid transit or frequent bus service, or a 5 minute walk to infrequent bus service

Source: ACS 2015, MBTA

Rapid Transit Serves Jobs Centers Well



Each dot represents 50 jobs

- Job paying \$40,000 or more
- Job paying \$15,000 - \$40,000
- Job paying \$15,000 or less

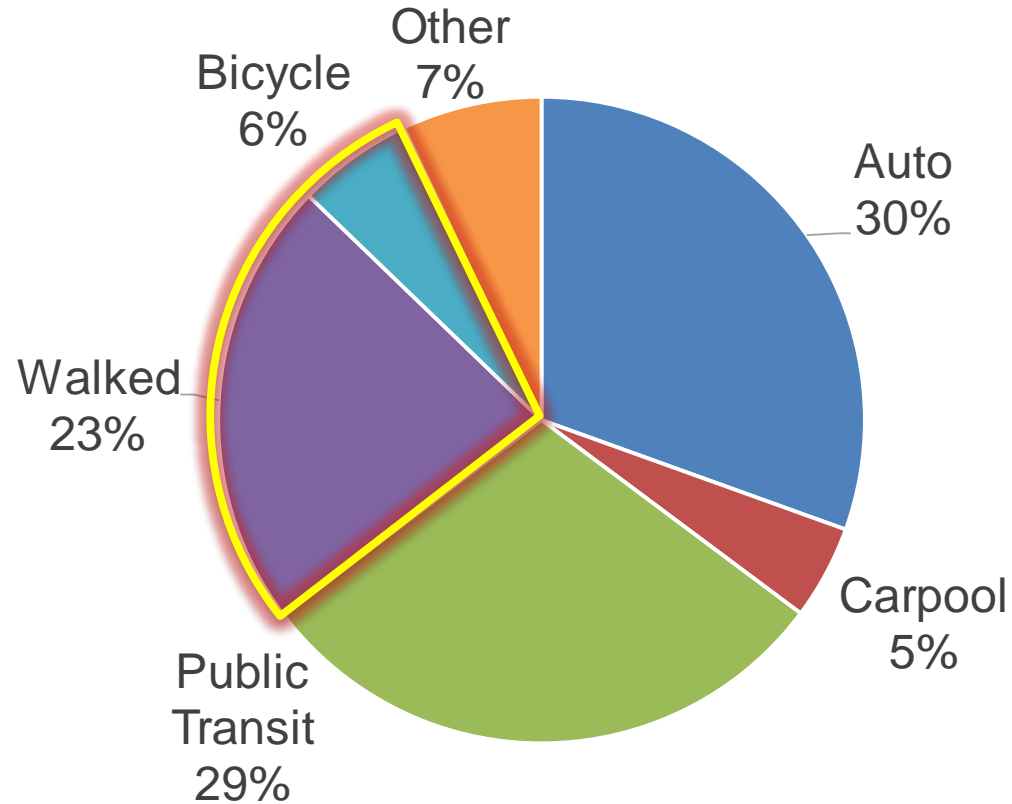
Half Mile Rapid Transit Service Area

Source: ACS 2015, MBTA, LEHD 2014

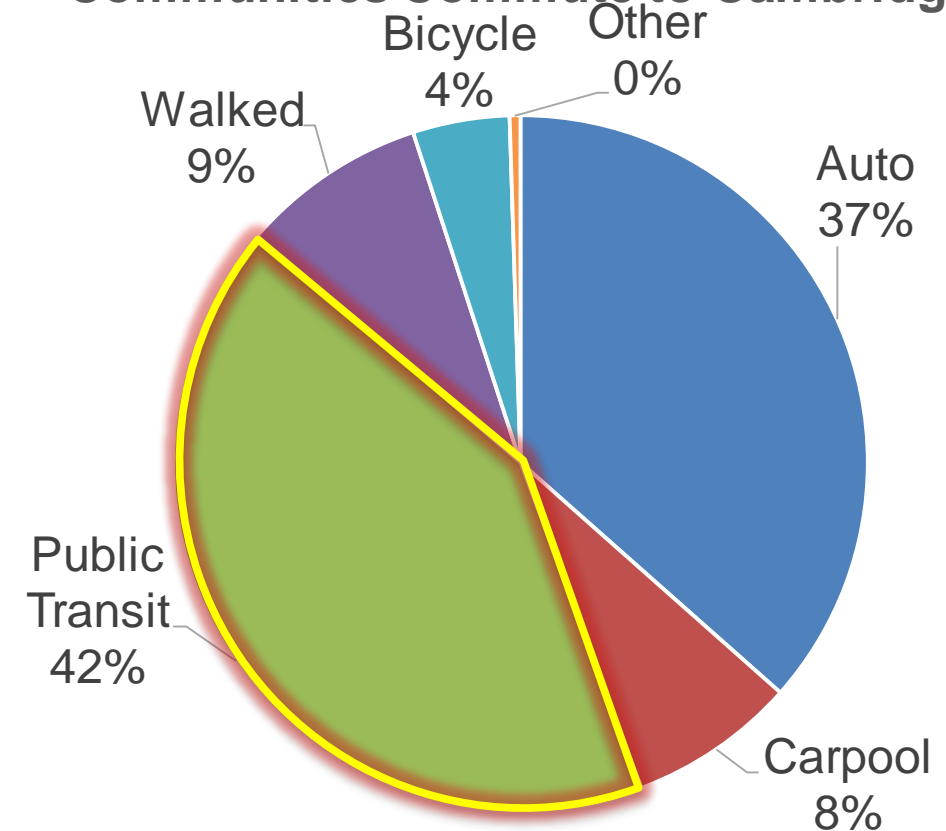
- 66% of all jobs in Cambridge are within a ten minute walk of a Rapid Transit Stop including:
 - 70% of jobs paying under \$15,000/year
 - 60% of jobs paying \$15,000-\$40,000/year
 - 66% of jobs paying over \$40,000 a year

Cantabrigians use transit at a lower rate than surrounding communities, however walk and bike mode shares are significantly higher.

How Cambridge Residents Commute to Work



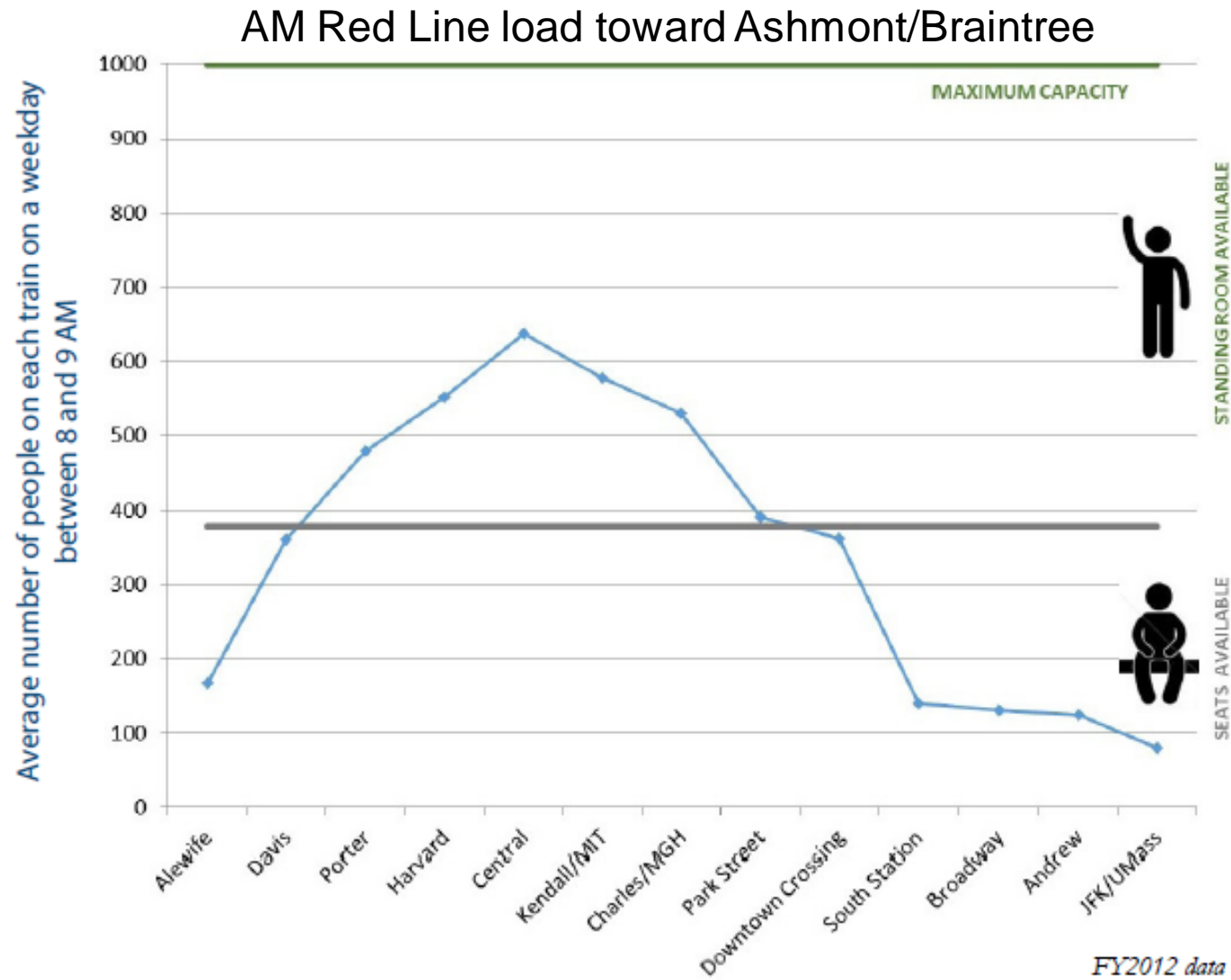
How Employees from Adjacent Communities Commute to Cambridge



Source: CTPP 2008

* Adjacent communities include Arlington, Belmont, Boston, Brookline, Somerville and Watertown

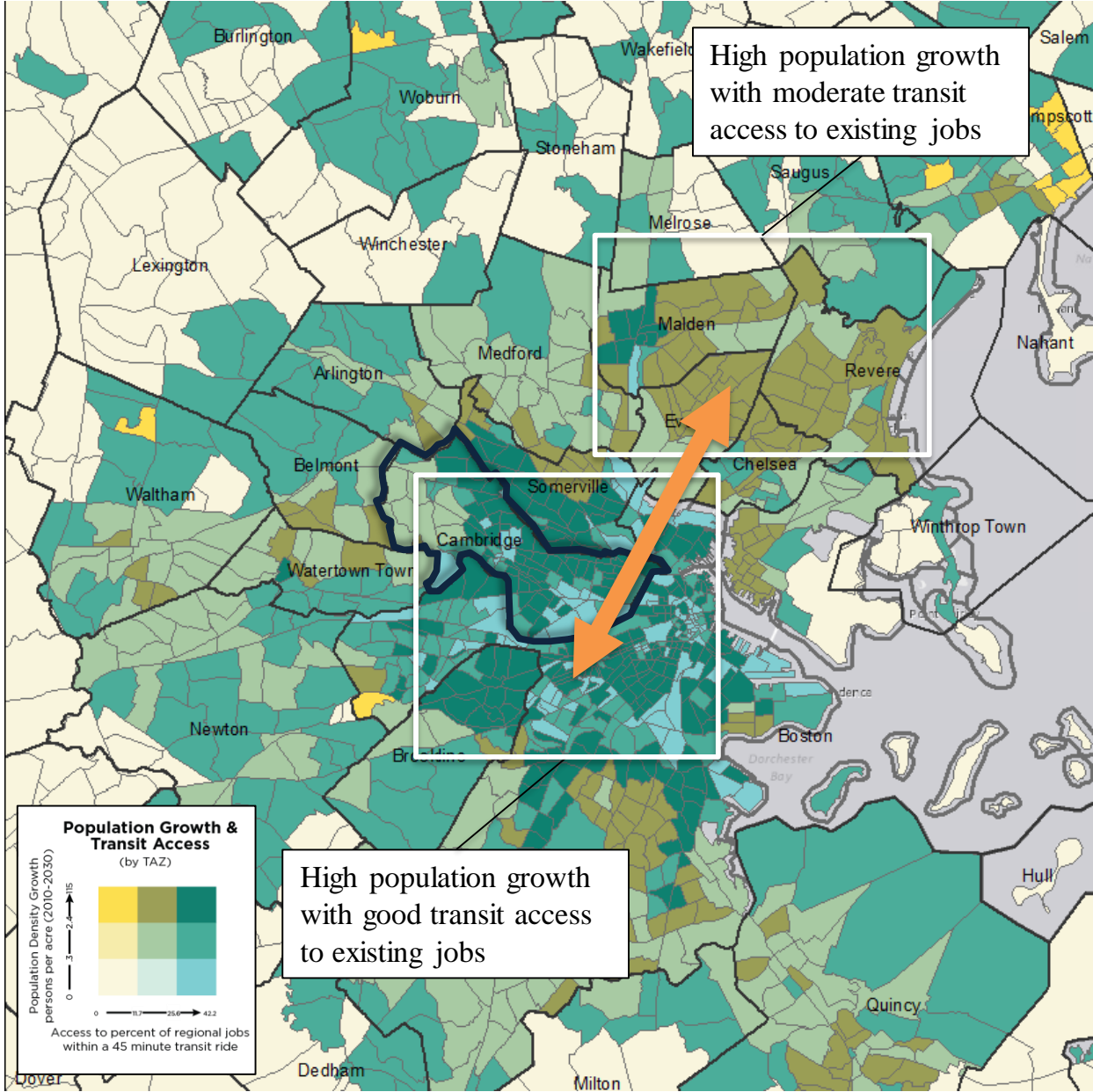
Red Line (especially at Central) is at peak capacity, but all-new cars that will be deployed starting in 2019 will increase capacity



Source: Cambridge Strategic Master Plan 2015

Transit access to jobs in surrounding communities with population growth is inadequate

- Cambridge has high projected population growth and good transit access
- Cities northeast of Cambridge have high population growth with moderate transit access to existing jobs
- More people from the northeast of Cambridge will be traveling to more jobs within and through Cambridge's borders



Projected Population Growth 2010-2030 and Current access to percent of regional jobs within a 45 minute transit ride

Source: MAPC, EPA Smart Growth 2014

Who does Cambridge's mobility system serve?

Tradeoffs to accommodate improved bicycle and transit infrastructure

Mass Ave Protected Bike Lane Demonstration Begins December 2016

12/1/2016



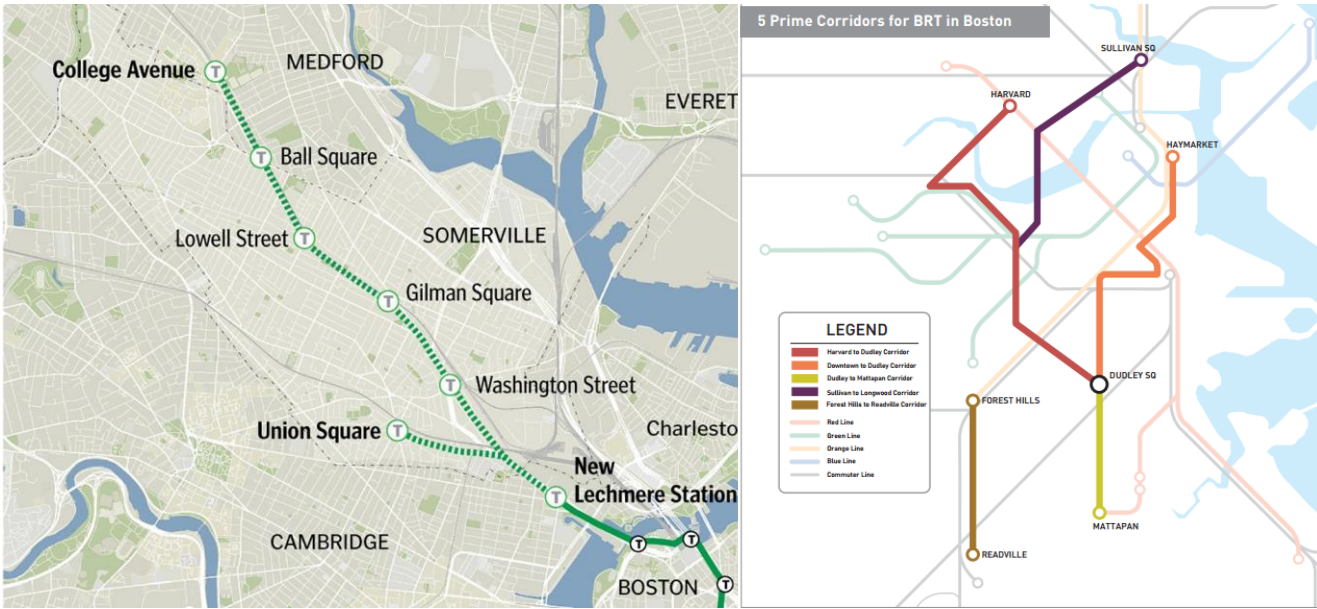
Boston- Harrison Avenue Contraflow Bus Lane



Cambridge- Norfolk Street Contraflow Bike Lane

MBTA is a State function and is underfunded which impacts ability to expand service

- Red line and bus service has high capacity and reliability off-peak; Rush hour service continues to face unpredictable unreliability due to the age of the system
- System investments will be focused on repair & flood protection for years (other than the Green Line)
- Private shuttles continue to supplement service and will need to expand
- Notable demand exists for cross-town service with rapid bus (BRT)

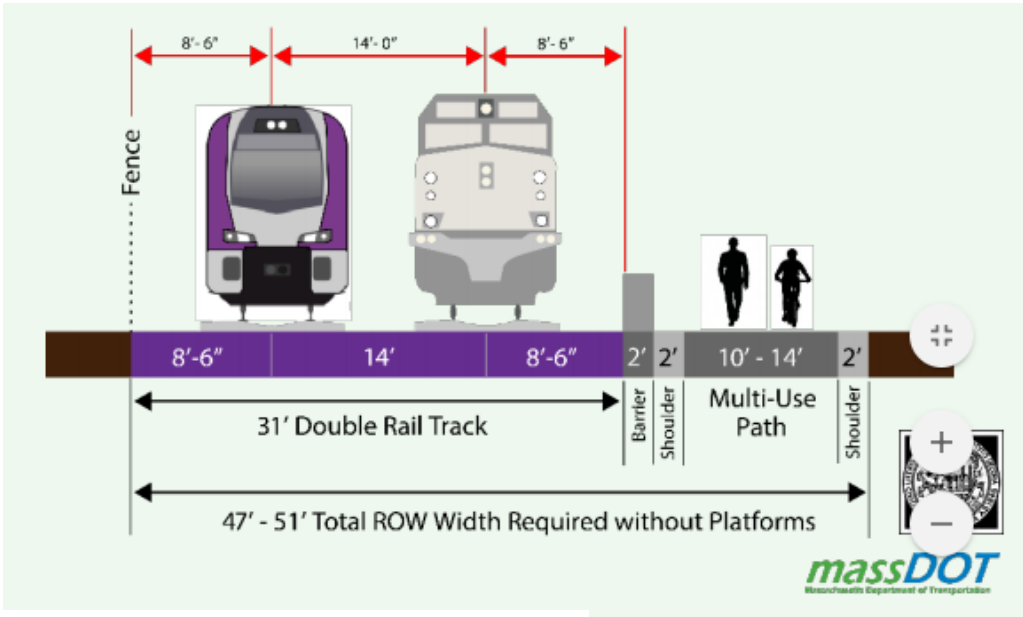


State control of parkways and Grand Junction corridor limit opportunities

- Memorial Drive has some localized improvements near MIT and Harvard, but retains high speeds and volumes
- Grand Junction alignment ideal for serving cross-town transit needs, but must retain MBTA commuter train re-positioning capacity which limits its future prospects



Memorial Drive near MIT



Grand Junction Path Proposal (MassDOT)

Safety, Access, and Vision Zero

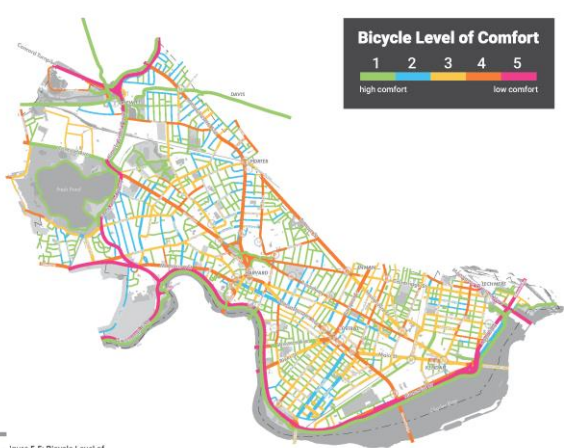


Figure 5-5: Bicycle Level of Comfort Analysis: BLC 1-5

- All new City projects will meet ADA requirements
- Accessible pedestrian signals added at new signalized intersections
- Commitment to Vision Zero focuses on safety in all transportation projects, with extensive focus on crash statistics to target problem areas
- Transportation plans in Cambridge aim to make sustainable modes accessible and enjoyable for all ages and abilities
- Bicycle Network Vision focuses on network of highly comfortable connections



Other Issues to Consider

- Freight issues and last mile delivery
- Emerging technologies: TNCs and Autonomous Vehicles
- Trends: distracted driving
- Parking: on-street parking, ratios in zoning

Regional Initiatives

- Green Line Extension
- I-90 Allston Project
- DCR Mt. Auburn Street Fresh Pond Improvements
- Metro Mayor's Task Force
- Go Boston 2030
- Hubway
- Grounding McGrath
- Logan Airport Noise Study
- MassDOT Bridge projects over Charles River,
- Watertown-Cambridge Greenway
- Ongoing MassDOT & MPO documents (CIP, TIP, UPWP etc)



Issues

1. *Regional Growth and Mode Share*
 - Population growth in surrounding communities that have moderate to low transit access to jobs
 - Vehicle traffic and congestion along major roads in Cambridge
2. *Citywide Growth*
 - Protecting the character of neighborhoods
 - Maintaining and enhancing existing transportation trends (mode share, trip generation, etc.)
3. *Transportation Inequities*
 - Economic burden of Housing & Transportation costs for neighborhoods
 - Equitable distribution of street space based on number of users and their level of vulnerability
4. *Sustainable Transportation Infrastructure*
 - Tradeoffs to accommodate improved bicycle and transit infrastructure
 - State control of transit and infrastructure limits expansion opportunities
5. *Safety, Access, and Mobility*
 - Vision Zero and mobility, both infrastructure and behavior initiatives
 - Access for all users, including people with disabilities

DRAFT GOALS

- **Safety-** Eliminate all traffic fatalities and severe injuries, while increasing healthy, equitable mobility for all (Vision Zero)
- **Accessibility-** Ensure that all residents, especially the elderly, disabled and people who do not drive, have access to a diverse set of travel options that meet their mobility needs
- **Equity-** Create a transportation system that is safe, comfortable, and convenient for people of all ages, abilities, and incomes.
- **Climate change-** Eliminate greenhouse gas emissions and reduce use of single-occupancy private automobiles.
- **Community Character-** Ensure that development results in a reduction of local, short-distance driving trips and supports walking, biking and transit-oriented mobility
- **Regionalism-** Work with neighboring communities, the MBTA, institutions, advocacy groups, and the private sector to enhance regional mobility by sustainable modes

Mobility Working Group: Session 1

May 1, 2017



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